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**DRAFT MITIGATED NEGATIVE DECLARATION OF ENVIRONMENTAL IMPACT
AND INITIAL STUDY**

PROJECT TITLE: Inyo Groundwater Monitoring Wells Project

PROJECT LOCATION: The project is located at several sites on land owned by the National Park Service in Death Valley National Park.

PROJECT DESCRIPTION: The project consists of the drilling, development, and monitoring of one deep groundwater-monitoring well and one to three shallow groundwater-monitoring wells in eastern Inyo County, California. All of the proposed wells are located in Death Valley National Park (DVNP). The project will consist of one shallow groundwater monitoring well at Nevares Spring (200 feet), one to two shallow (500 feet) groundwater monitoring wells in the Furnace Creek area, and one deep (3000 feet) groundwater monitoring well in Echo Canyon. This project is funded by a grant from the United States Department of Energy (DOE), Office of Civilian Radioactive Waste Management, for the purposes of generating geological and hydrological data important to DOE's Yucca Mountain Project and the development of a license application to the United States Nuclear Regulatory Commission.

The Nevares Spring well is intended to explore the structure and hydrogeology of the spring mound. If it is possible to produce the Cow Creek water supply from a future production well at Nevares Spring, the current conflict between human uses of the water and the wetland and riparian ecosystem uses of the water should be greatly reduced. The objective of the Echo Canyon well is to establish the presence (or absence) of the Lower Carbonate Aquifer on the west flank of the Funeral Mountains, and to provide critical information regarding aquifer characteristics that can be used to develop substantially improved conceptual and numerical models of the aquifer system. The purpose of the Furnace Creek wells is to provide information on hydrogeologic conditions at moderate depths. Data will be used to develop a more refined water balance for the Furnace Creek area. The data provided by these wells also will provide information valuable to DVNP regarding management of its water resources and protection of its water rights.

The National Park Service (NPS) has issued a Categorical Exemption under the National Environmental Policy Act (NEPA) for all drill sites associated with the project. All drilling fluids will be held in a self-contained fluid system, and disposed of on site. To ensure that the surrounding environment is not impacted by drilling operations, no toxic substances are allowed at the project site. All drilling equipment will be removed from the site following well construction. No new road construction will be needed from the project. DVNP is solely responsible for improvements to the road leading to Nevares Spring. Access to drilling sites in Furnace Creek will be via existing roadways. DVNP will be responsible for a reasonably grade an existing road to the Echo Canyon site. Inyo County will be responsible for any additional work on the Echo Canyon road that is needed for drill rig and support vehicle access. Inyo County will be responsible for necessary grading at all drill sites for drilling pads. When possible, drilling pads will be graded on impacted areas. Reclamation and revegetation at drillings sites will be performed when necessary to restore areas as close as possible to pre-drilling condition.

Nevares Spring Groundwater Monitoring Well

The possible start date ranges from September through December 2007. The anticipated duration of drilling, installation and testing is approximately 10 days.

The Nevares Spring monitoring well is proposed to be located in non-wilderness land immediately west of Nevares Spring, at the end of the Nevares Spring Road (Latitude 36° 30' 49.6" North, Longitude 116° 49' 18" West, see Attachment C for site map). The area of disturbed land is expected to be approximately 50 feet by 75 feet; however, this area is previously disturbed by construction of the existing pipeline and removal of exotic vegetation. Disturbance will be caused by heavy vehicle traffic across the ground surface, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, and spreading rock cuttings after the well is completed. The well will be drilled using air-rotary drilling technology. Drill cuttings will be removed from the borehole by circulating air or a combination of air and fresh water through the drill stem. Fluid discharged at the ground surface will be directed away from the spring. Drill cuttings (rock chips, gravel, sand and silt) generated during drilling will be spread on the ground surface after drilling is completed.

An approximate 6-inch -diameter borehole will be drilled to an approximate depth of 200 feet below ground surface. The well will be logged to characterize the lithology and subsurface conditions. In order to make stratigraphic correlation of subsurface deposits Inyo County will make 1) detailed petrographic analyses of the drill cuttings, and 2) evaluate downhole geophysical logs, if appropriate. The petrographic analyses will provide criteria for delineating subsurface geologic units; these will be correlated with studies of surface rock exposures. Additionally, the petrographic analyses will provide data on physical properties of the rocks.

If the 6-inch borehole will stand open without casing, the well will be pump tested for a 24- to 72-hour period to determine the (1) potential volume of water than could be developed by a well, and (2) effect on spring flow. If the borehole does not stand open, the well will be pumped at a much lower volume after installation of the permanent 2-inch-diameter monitoring well casing. Water generated during the pumping test will be routed down the hill into a natural wash and away from the spring.

A 2-inch-diameter PVC (polyvinyl chloride) well casing will be installed in the borehole. The lower 20 to 50 feet of the casing assembly will consist of PVC well screen. The annular space between the well screen and borehole wall will be filled with a silica sand filter pack. The annular space between the well casing and borehole wall from above the screen to the near ground surface will be sealed with bentonite grout to prevent movement of fluids in the borehole. The uppermost several feet of annular space will be sealed with concrete. The wellhead will be completed with a 8-inch diameter locking cap steel well cover that extends approximately 2-feet above the ground surface.

Water samples will collected from the well for chemical analyses. The samples will be analyzed for major cations and anions, metals, nutrients, and isotopic ratios of the elements of strontium, uranium, oxygen, and hydrogen. The samples will be analyzed for radiocarbon dates where appropriate. The results of the analyses will be compared to water chemistry data from springs and wells at, and near Yucca Mountain, at intermediate points between Yucca Mountain and Death Valley, the Inyo County wells installed east of the Funeral Mountains and Furnace Creek area springs.

Furnace Creek Groundwater Monitoring Wells

The possible start date ranges from December 2007 through February 2008. The anticipated duration of drilling, installation and testing is approximately 15 to 25 days per well. Drilling operations will be conducted 24-hours per day, if noise and light levels are acceptable. Otherwise operations be conducted 12-hours per day.

Two Furnace Creek Fan monitoring wells are proposed to be located in non-wilderness land immediately adjacent to existing roads (see Attachment C for site map). Possible locations include near the (1) entrance to Sunset Campground (Latitude 36° 27' 36.2" North, Longitude 116° 52' 6.7" West), (2) northeast corner of Sunset Campground, southeast corner of the overflow camping area (Latitude 36° 27' 20.6" North, Longitude 116° 51' 34.9" West), and (3) northwest end of the vacant gravel area behind the Chevron gas station, southwest from the DVNP Visitor Center (Latitude 36° 27' 35.4" North, Longitude 116° 51' 8" West).

The area of disturbed land is expected to be approximately 100 feet by 150 feet. Disturbance will be caused by heavy vehicle traffic across the ground surface, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, excavation of a temporary mud pit, and spreading rock cuttings after the well is completed. The well will be drilled using mud-rotary drilling technology as described below for the Echo Canyon Well.

An approximate 8-inch-diameter borehole will be drilled to an approximate depth between 500 feet below ground surface. The finished depth will depend on the depth at which carbonate bedrock or substantial thicknesses of fine-grained Furnace Creek Formation is encountered. The well will be logged to characterize the lithology as described above.

A 4-inch-diameter steel well casing will be installed in the borehole and completed as described for the Echo Canyon Well. The well will be pump tested for a 72-hour period to determine hydraulic properties of the aquifer. Water samples will be collected from the well for chemical analyses as described above. Monitoring will be conducted as described above.

Echo Canyon Groundwater Monitoring Well

The possible start date ranges from September through December 2007, and mid March 2008. The anticipated duration of drilling, installation and testing is approximately 45 days. Drilling operations will be conducted 24-hours per day.

The Echo Canyon monitoring well is proposed to be located in non-wilderness land immediately adjacent to the Echo Canyon Road (Latitude 36° 26' 27" North, Longitude 116° 48' 56.5" West, see Attachment C for site map). The proposed drilling site is at the apex of the alluvial fan approaching the point where the Echo Canyon road passes into the Funeral Mountains. The area of disturbed land is expected to be approximately 200 feet by 225 feet. Disturbance will be caused by heavy vehicle traffic across alluvium of Echo Canyon Wash, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, excavation of a temporary mud pit, and spreading rock cuttings after the well is completed. The well will be drilled using mud-rotary drilling technology. Drill cuttings will be removed from the borehole by circulating a fresh-water bentonite-based mud through the drill stem. Fluid will be controlled and contained at the surface with a self-contained drilling fluid shaker system to remove solid drill cuttings and one temporary mud pit excavated into the ground in which drilling fluid will be circulated for reuse. The dimensions of the mud pit will be approximately 10 feet wide, 20 feet long and 2 feet deep. On completion of drilling, the material that was removed from the pit will be placed back in the pit and graded to match the surrounding terrain. Drill cuttings (rock chips, gravel, sand and silt) generated during drilling will be spread on the ground surface after drilling is completed.

An approximate 12-inch-diameter borehole will be drilled to an approximate depth between 1,500 feet and 3,000 feet below ground surface. The finished depth will depend on the depth at which the lower carbonate aquifer is encountered and the depth to ground water. The well will be logged to characterize the lithology. In order to make stratigraphic correlation of subsurface deposits Inyo County will make 1) detailed petrographic analyses of the drill cuttings, and 2) evaluate downhole geophysical logs. The petrographic analyses will provide criteria for delineating subsurface geologic units; these will be correlated with studies of surface rock

exposures. Additionally, the petrographic analyses will provide data on physical properties of the rocks. These physical properties impact the hydrologic properties of the rock, a factor that is important in the flow modeling.

A 4-inch or 6-inch-diameter steel well casing will be installed in the borehole. The lower 100 to 200 feet of the casing assembly will consist of stainless steel well screen. The annular space between the well screen and borehole wall will be filled with a silica sand filter pack. The annular space between the well casing and borehole wall from above the screen to the near ground surface will be sealed with bentonite grout to prevent movement of fluids in the borehole. The uppermost several feet of annular space will be sealed with concrete. The wellhead will be completed with a 12-inch diameter locking cap steel well cover that extends approximately 2-feet above the ground surface.

The well will be pump tested for a 72-hour period to determine hydraulic properties of the aquifer. Water generated during the pumping test will be routed down the Echo Canyon wash. Water samples will be collected from the well for chemical analyses. The samples will be analyzed for major cations and anions, metals, nutrients, and isotopic ratios of the elements of strontium, uranium, oxygen, and hydrogen. The samples will be analyzed for radiocarbon dates where appropriate. The results of the analyses will be compared to water chemistry data from springs and wells at, and near Yucca Mountain, at intermediate points between Yucca Mountain and Death Valley, the Inyo County wells installed east of the Funeral Mountains and Furnace Creek area springs. Water levels in the well will be monitored by Inyo County for a two-year period to evaluate the hydrology of the Lower Carbonate Aquifer system. Thereafter, monitoring will be conducted by Death Valley National Park.

FINDINGS:

An Initial Study and Evaluation of Potential Impacts has been prepared by the Planning Department (attached). The Initial Study, including an environmental checklist, indicates that the proposed project will **not** have a significant adverse impact on the environment for the following reasons:

- A. The proposed project is consistent with and incorporates all mitigation measures identified by Inyo County in its California Environmental Quality Act analysis, and the NPS in its Categorical Exemption under NEPA.
- B. The mitigation measures identified by Inyo County and the NPS will be applicable at all drill sites and are adequate to reduce potential impacts to the environment to less than significant levels.
- C. Potential adverse environmental impacts inherent in the project will not exceed thresholds of significance.

MITIGATION MEASURES / MITIGATION AND MONITORING PLAN

1. Aesthetics

Potential Impacts: The drilling operation will require the temporary erection and operation of a drilling rig and use of multiple drilling sites by vehicles, machinery, and personnel necessary to complete project activities, to include drilling sample retrieval and implementation of site impact control and site restoration procedures. Equipment and site operations may be visible to park visitors. Mitigation measures apply to all drill sites.

Mitigation Measures:

- A. Limit off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project.
- B. Limit removal of perennial shrubs to the smallest feasible area to accomplish the project.
- C. Limit the footprint of development to the smallest feasible area to accomplish the project.
- D. The drill rig, equipment and support vehicles shall stay within the boundary of the areas flagged by NPS staff during all drilling, well construction, development and pump testing activities.
- E. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drill areas except for the gravel paved access roads adjacent to the drilling site. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph.

Mitigation Level: Mitigate to a threshold of less than significant.

Lead Agency: Inyo County Planning Department

Funding Source: Costs of implementing mitigation measures are paid for by Inyo County through the DOE research grant funding made available to the County by Cooperative Agreement DE-FC28-06RW12368.

Implementing Party: Inyo County

Monitoring Agency: The agencies responsible for monitoring the drilling project will be the NPS and Inyo County. The County will also rely on project contractors working under the direction of the County.

Time Frame: Drilling is expected to begin in December 2007, with well construction and development to conclude approximately in May 2008. Monitoring and research activities will continue through May 2008.

2. Biological Resources

Potential Impacts: The drilling operation will require the temporary erection and operation of a drilling rig and use of multiple drilling sites by vehicles, machinery, and personnel necessary to complete project activities, to include drilling, sample retrieval and implementation of site impact control and site restoration procedures. Placement of equipment and site operations will result in temporary disturbance to the immediate natural environment. Mitigation measures apply to all drill sites.

Mitigation Measures:

- A. Limit off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project.
- B. Limit removal of perennial shrubs to the smallest feasible area to accomplish the project.
- C. Limit the footprint of development to the smallest feasible area to accomplish the project.
- D. The drilling rig, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land.
- E. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited.
- F. Soil and rock cuttings generated during drilling shall be contained or stockpiled at the site. Stockpiled materials are to be spread at the drill site following air-drying.
- G. Straw or hay bales, or other imported vegetation, may be used as erosion control or turbidity control devices.
- H. The drill rig, equipment and support vehicles shall stay within the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities.
- I. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to the drilling site. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph.
- J. Drilling will occur consistent with time limitations imposed by the NPS.

Mitigation Level: Mitigate to a threshold of less than significant.

Lead Agency: Inyo County Planning Department

Funding Source: Costs of implementing mitigation measures are paid for by Inyo County through the DOE research grant funding made available to the County by Cooperative Agreement DE-FC28-06RW12368.

Implementing Party: Inyo County

Monitoring Agency: The agencies responsible for monitoring the drilling project will be the NPS and Inyo County. The County will also rely on project contractors working under the direction of the County.

Time Frame: Drilling is expected to begin in December 2007, with well construction and development to conclude approximately in May 2008. Monitoring and research activities will continue through May 2008.

3. Cultural Resources

Potential Impacts: The drilling operation will require the temporary erection and operation of a drilling rig and use of multiple drilling sites by vehicles, machinery, and personnel necessary to complete project activities, to include drilling, sample retrieval and implementation of site impact control and site restoration procedures. Placement of equipment and site operations will result in temporary disturbance to the immediate natural environment, including soils and surface features. Mitigation measures apply to all drill sites.

Mitigation Measures:

- A. If buried archeological artifacts are uncovered during the project, all activity at the site must stop. Every effort will be made to protect the artifacts, and the NPS Regional archeologist must be notified as soon as possible. If human remains are unearthed, the Inyo County Sheriff and Coroner, as well as the NPS archeologist, shall be called to the site. If it is determined that the remains are of Native American origin, the California Native American Heritage Commission shall be notified and they will determine the "most likely descendents." That tribe shall then determine how to handle the remains according to tribal customs and pursuant to California Public Resources Code §5097.98.
- B. Limit off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project.
- C. Limit the footprint of development to the smallest feasible area to accomplish the project.
- D. The drilling rig, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land.
- E. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited.
- F. The drill rig, equipment and support vehicles shall stay within the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities.
- G. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to the drilling site. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph.

Mitigation Level: Mitigate to a threshold of less than significant.

Lead Agency: Inyo County Planning Department

Funding Source: Costs of implementing mitigation measures are paid for by Inyo County through the DOE research grant funding made available to the County by Cooperative Agreement DE-FC28-06RW12368.

Implementing Party: Inyo County

Monitoring Agency: The agencies responsible for monitoring the drilling project will be the NPS and Inyo County. The County will also rely on project contractors working under the direction of the County.

Time Frame: Drilling is expected to begin in December 2007, with well construction and development to conclude approximately in May 2008. Monitoring and research activities will continue through May 2008.

4. Geology and Soils

Potential Impacts: The drilling operation will require the temporary erection and operation of a drilling rig and use of multiple drilling sites by vehicles, machinery, and personnel necessary to complete project activities, to include drilling, sample retrieval and implementation of site impact control and site restoration procedures. Placement of equipment and site operations will result in temporary disturbance to the immediate natural environment. Mitigation measures apply to all drill sites.

Mitigation Measures:

- A. Limit off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project.
- B. Limit removal of perennial shrubs to the smallest feasible area to accomplish the project.
- C. Limit the footprint of development to the smallest feasible area to accomplish the project.
- D. The drill rig, equipment and support vehicles shall stay within the boundaries of the area flagged by NPS staff during all drilling, well construction, development and pump testing activities.
- E. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited.
- F. The drill rig, equipment and support vehicles shall stay within the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities.
- G. Soil and rock cuttings generated during drilling shall be contained or stockpiled at the site. Stockpiled materials are to be spread at the drill site following air-drying.
- H. Straw or hay bales, or other imported vegetation, may be used as erosion control or turbidity control devices.

- I. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to the drilling site. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph.

Mitigation Level: Mitigate to a threshold of less than significant.

Lead Agency: Inyo County Planning Department

Funding Source: Costs of implementing mitigation measures are paid for by Inyo County through the DOE research grant funding made available to the County by Cooperative Agreement DE-FC28-06RW12368.

Implementing Party: Inyo County

Monitoring Agency: The agencies responsible for monitoring the drilling project will be the NPS and Inyo County. The County will also rely on project contractors working under the direction of the County.

Time Frame: Drilling is expected to begin in December 2007, with well construction and development to conclude approximately in May 2008. Monitoring and research activities will continue through May 2008.

5. Noise

Potential Impacts: Temporary increases in ambient noise level will result from this project. The drilling operation will require the temporary erection and operation of a drilling rig and use of multiple drilling sites by vehicles, machinery, and personnel necessary to complete project activities, to include drilling, sample retrieval and implementation of site impact control and site restoration procedures. Placement of equipment and site operations will result in temporary disturbance to the immediate natural environment. Mitigation measures apply to all drill sites.

Mitigation Measures

- A. On-site personnel will be required to follow standard industry practice with respect to protection against noise and vibration.
- B. The drilling site will be used for a limited period of time, consistent with NPS permit requirements.
- C. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to the drilling site. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph.

Mitigation Level: Mitigate to a threshold of less than significant.

Lead Agency: Inyo County Planning Department

Funding Source: Costs of implementing mitigation measures are paid for by Inyo County through the DOE research grant funding made available to the County by Cooperative Agreement DE-FC28-06RW12368.

Implementing Party: Inyo County

Monitoring Agency: The agencies responsible for monitoring the drilling project will be the NPS and Inyo County. The County will also rely on project contractors working under the direction of the County.

Time Frame: Drilling is expected to begin in December 2007, with well construction and development to conclude approximately in May 2008. Monitoring and research activities will continue through May 2008.

This constitutes a Negative Finding for the Mandatory Findings required pursuant to Section 15065 of the California Environmental Quality Act (CEQA) Guidelines.

The review period for this Mitigated Negative Declaration expires on November 27, 2007. Inyo County is not required to respond to any comments received after this date.

Additional information is available from the Yucca Mountain Repository Assessment Office. Please contact Project Planner Matt Gaffney if you have any questions regarding this project.

INYO COUNTY PLANNING DEPARTMENT

Date

Matt Gaffney, Associate Planner

Attachments: Attachment A- CEQA Appendix G Checklist/Impact Evaluation
 Attachment B- Initial Study/Project Description
 Attachment C- NPS Categorical Exemption, Site Maps, NPS Botanical Survey, NPS
 Biological Survey, NPS Environmental Screening Form

INYO COUNTY PLANNING DEPARTMENT

APPENDIX G

Environmental Checklist Form

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance issues.

INYO COUNTY PLANNING DEPARTMENT

Environmental Checklist Form

1. Project title: INYO GROUNDWATER MONITORING WELLS PROJECT.
2. Lead agency name and address: Inyo County Planning Department, P.O. Drawer L, Independence, CA 93526.
3. Contact person and phone number: Matt Gaffney, Associate Planner, (760) 873-7423.
4. Project location: Various sites in Death Valley National Park, Inyo County, California
5. Project sponsor's name and address: Inyo County Planning Department, P.O. Drawer L, Independence, CA 93526.
6. General plan designation: The site is located on National Park Service jurisdictional properties and has a General Plan Designation of State and Federal Lands (SFL).
7. Zoning: The wells will be located in a non-wilderness area on National Park Service jurisdictional properties. The well sites are zoned OS-40 (Open Space-40 acre minimum).
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The project consists of the drilling, development, and monitoring of one deep groundwater-monitoring well and one to three shallow groundwater-monitoring wells in eastern Inyo County, California. All of the proposed wells are located in Death Valley National Park (DVNP). The project will consist of one shallow groundwater monitoring well at Nevares Spring (200 feet), one to two shallow (500 feet) groundwater monitoring wells in the Furnace Creek area, and one deep (3000 feet) groundwater monitoring well in Echo Canyon. This project is funded by a grant from the United States Department of Energy (DOE), Office of Civilian Radioactive Waste Management, for the purposes of generating geological and hydrological data important to DOE's Yucca Mountain Project and the development of a license application to the United States Nuclear Regulatory Commission.

The Nevares Spring well is intended to explore the structure and hydrogeology of the spring mound. If it is possible to produce the Cow Creek water supply from a future production well at Nevares Spring, the current conflict between human uses of the water and the wetland and riparian ecosystem uses of the water should be greatly reduced. The objective of the Echo Canyon well is to establish the presence (or absence) of the Lower Carbonate Aquifer on the west flank of the Funeral Mountains, and to provide critical information regarding aquifer characteristics that can be used to develop substantially improved conceptual and numerical models of the aquifer system. The purpose of the Furnace Creek wells is to provide information on hydrogeologic conditions at moderate depths. Data will be used to develop a more refined water balance for the Furnace Creek area. The data provided by these wells also will provide information valuable to DVNP regarding management of its water resources and protection of its water rights.

The National Park Service (NPS) has issued a Categorical Exemption under the National Environmental Policy Act (NEPA) for all drill sites associated with the project. All drilling fluids will be held in a self-contained fluid system, and disposed of on site. To ensure that the surrounding environment is not impacted by drilling operations, no toxic substances are allowed at the project site. All drilling equipment will be removed from the site following well construction. No new road construction will be needed from the project. DVNP is solely responsible for improvements to the road leading to Nevares Spring. Access to drilling sites in Furnace Creek will be via existing roadways. DVNP will be responsible for a reasonably grade an existing road to the Echo Canyon site. Inyo County will be responsible for any additional work on the Echo Canyon road that is needed for drill rig and support vehicle access. Inyo County will be responsible for necessary grading at all drill sites for drilling pads. When possible, drilling pads will be graded on impacted areas. Reclamation and revegetation at drillings sites will be performed when necessary to restore areas as close as possible to pre-drilling condition.

Nevares Spring Groundwater Monitoring Well

The possible start date ranges from September through December 2007. The anticipated duration of drilling, installation and testing is approximately 10 days.

The Nevares Spring monitoring well is proposed to be located in non-wilderness land immediately west of Nevares Spring, at the end of the Nevares Spring Road (Latitude 36° 30' 49.6" North, Longitude 116° 49' 18" West, see Attachment C for site map). The area of disturbed land is expected to be approximately 50 feet by 75 feet; however, this area is previously disturbed by construction of the existing pipeline and removal of exotic vegetation. Disturbance will be caused by heavy vehicle traffic across the ground surface, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, and spreading rock cuttings after the well is completed. The well will be drilled using air-rotary drilling technology. Drill cuttings will be removed from the borehole by circulating air or a combination of air and fresh water through the drill stem. Fluid discharged at the ground surface will be directed away from the spring. Drill cuttings (rock chips, gravel, sand and silt) generated during drilling will be spread on the ground surface after drilling is completed.

An approximate 6-inch -diameter borehole will be drilled to an approximate depth of 200 feet below ground surface. The well will be logged to characterize the lithology and subsurface conditions. In order to make stratigraphic correlation of subsurface deposits Inyo County will make 1) detailed petrographic analyses of the drill cuttings, and 2) evaluate downhole geophysical logs, if appropriate. The petrographic analyses will provide criteria for delineating subsurface geologic units; these will be correlated with studies of surface rock exposures. Additionally, the petrographic analyses will provide data on physical properties of the rocks.

If the 6-inch borehole will stand open without casing, the well will be pump tested for a 24- to 72-hour period to determine the (1) potential volume of water than could be developed by a well, and (2) effect on spring flow. If the borehole does not stand open, the well will be pumped at a much lower volume after installation of the permanent 2-inch-diameter monitoring well casing. Water generated during the pumping test will be routed down the hill into a natural wash and away from the spring.

A 2-inch-diameter PVC (polyvinyl chloride) well casing will be installed in the borehole. The lower 20 to 50 feet of the casing assembly will consist of PVC well screen. The annular space between the well screen and borehole wall will be filled with a silica sand filter pack. The annular space between the well casing and borehole wall from above the screen to the near ground surface will be sealed with

bentonite grout to prevent movement of fluids in the borehole. The uppermost several feet of annular space will be sealed with concrete. The wellhead will be completed with a 8-inch diameter locking cap steel well cover that extends approximately 2-feet above the ground surface.

Water samples will collected from the well for chemical analyses. The samples will be analyzed for major cations and anions, metals, nutrients, and isotopic ratios of the elements of strontium, uranium, oxygen, and hydrogen. The samples will be analyzed for radiocarbon dates where appropriate. The results of the analyses will be compared to water chemistry data from springs and wells at, and near Yucca Mountain, at intermediate points between Yucca Mountain and Death Valley, the Inyo County wells installed east of the Funeral Mountains and Furnace Creek area springs.

Furnace Creek Groundwater Monitoring Wells

The possible start date ranges from December 2007 through February 2008. The anticipated duration of drilling, installation and testing is approximately 15 to 25 days per well. Drilling operations will be conducted 24-hours per day, if noise and light levels are acceptable. Otherwise operations be conducted 12-hours per day.

Two Furnace Creek Fan monitoring wells are proposed to be located in non-wilderness land immediately adjacent to existing roads (see Attachment C for site map). Possible locations include near the (1) entrance to Sunset Campground (Latitude 36° 27' 36.2" North, Longitude 116° 52' 6.7" West), (2) northeast corner of Sunset Campground, southeast corner of the overflow camping area (Latitude 36° 27' 20.6" North, Longitude 116° 51' 34.9" West), and (3) northwest end of the vacant gravel area behind the Chevron gas station, southwest from the DVNP Visitor Center (Latitude 36° 27' 35.4" North, Longitude 116° 51' 8" West).

The area of disturbed land is expected to be approximately 100 feet by 150 feet. Disturbance will be caused by heavy vehicle traffic across the ground surface, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, excavation of a temporary mud pit, and spreading rock cuttings after the well is completed. The well will be drilled using mud-rotary drilling technology as described below for the Echo Canyon Well.

An approximate 8-inch-diameter borehole will be drilled to an approximate depth between 500 feet below ground surface. The finished depth will depend on the depth at which carbonate bedrock or substantial thicknesses of fine-grained Furnace Creek Formation is encountered. The well will be logged to characterize the lithology as described above.

A 4-inch-diameter steel well casing will be installed in the borehole and completed as described for the Echo Canyon Well. The well will be pump tested for a 72-hour period to determine hydraulic properties of the aquifer. Water samples will collected from the well for chemical analyses as described above. Monitoring will be conducted as described above.

Echo Canyon Groundwater Monitoring Well

The possible start date ranges from September through December 2007, and mid March 2008. The anticipated duration of drilling, installation and testing is approximately 45 days. Drilling operations will be conducted 24-hours per day.

The Echo Canyon monitoring well is proposed to be located in non-wilderness land immediately adjacent to the Echo Canyon Road (Latitude 36° 26' 27" North, Longitude 116° 48' 56.5" West, see

Attachment C for site map). The proposed drilling site is at the apex of the alluvial fan approaching the point where the Echo Canyon road passes into the Funeral Mountains. The area of disturbed land is expected to be approximately 200 feet by 225 feet. Disturbance will be caused by heavy vehicle traffic across alluvium of Echo Canyon Wash, storage of drilling supplies and equipment at the site during drilling and pumping test operations, establishing an area where geologists logging the well can conduct their work, excavation of a temporary mud pit, and spreading rock cuttings after the well is completed. The well will be drilled using mud-rotary drilling technology. Drill cuttings will be removed from the borehole by circulating a fresh-water bentonite-based mud through the drill stem. Fluid will be controlled and contained at the surface with a self-contained drilling fluid shaker system to remove solid drill cuttings and one temporary mud pit excavated into the ground in which drilling fluid will be circulated for reuse. The dimensions of the mud pit will be approximately 10 feet wide, 20 feet long and 2 feet deep. On completion of drilling, the material that was removed from the pit will be placed back in the pit and graded to match the surrounding terrain. Drill cuttings (rock chips, gravel, sand and silt) generated during drilling will be spread on the ground surface after drilling is completed.

An approximate 12-inch-diameter borehole will be drilled to an approximate depth between 1,500 feet and 3,000 feet below ground surface. The finished depth will depend on the depth at which the lower carbonate aquifer is encountered and the depth to ground water. The well will be logged to characterize the lithology. In order to make stratigraphic correlation of subsurface deposits Inyo County will make 1) detailed petrographic analyses of the drill cuttings, and 2) evaluate downhole geophysical logs. The petrographic analyses will provide criteria for delineating subsurface geologic units; these will be correlated with studies of surface rock exposures. Additionally, the petrographic analyses will provide data on physical properties of the rocks. These physical properties impact the hydrologic properties of the rock, a factor that is important in the flow modeling.

A 4-inch or 6-inch-diameter steel well casing will be installed in the borehole. The lower 100 to 200 feet of the casing assembly will consist of stainless steel well screen. The annular space between the well screen and borehole wall will be filled with a silica sand filter pack. The annular space between the well casing and borehole wall from above the screen to the near ground surface will be sealed with bentonite grout to prevent movement of fluids in the borehole. The uppermost several feet of annular space will be sealed with concrete. The wellhead will be completed with a 12-inch diameter locking cap steel well cover that extends approximately 2-feet above the ground surface.

The well will be pump tested for a 72-hour period to determine hydraulic properties of the aquifer. Water generated during the pumping test will be routed down the Echo Canyon wash. Water samples will be collected from the well for chemical analyses. The samples will be analyzed for major cations and anions, metals, nutrients, and isotopic ratios of the elements of strontium, uranium, oxygen, and hydrogen. The samples will be analyzed for radiocarbon dates where appropriate. The results of the analyses will be compared to water chemistry data from springs and wells at, and near Yucca Mountain, at intermediate points between Yucca Mountain and Death Valley, the Inyo County wells installed east of the Funeral Mountains and Furnace Creek area springs. Water levels in the well will be monitored by Inyo County for a two-year period to evaluate the hydrology of the Lower Carbonate Aquifer system. Thereafter, monitoring will be conducted by Death Valley National Park.

9. Surrounding land uses and setting: Briefly describe the project's surroundings: Land uses and zoning surrounding the site reflects the following:

The project consists of the construction, development and monitoring of deep and shallow research wells in eastern Inyo County. The well sites are all located within Death Valley National Park. The

well sites are in undeveloped areas that are accessed by existing roads. Detailed information is present in the Project Description and permit information attached to the checklist.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

U.S. Department of Energy, National Park Service, Inyo County Environmental Health Department

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input checked="" type="checkbox"/> Aesthetic Resources	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input checked="" type="checkbox"/> Geology /Soils
<input type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Hydrology / Water Quality	<input type="checkbox"/> Land Use / Planning
<input type="checkbox"/> Mineral Resources	<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Population / Housing
<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation	<input type="checkbox"/> Transportation/Traffic
<input type="checkbox"/> Utilities / Service Systems	<input type="checkbox"/> Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

 Matt Gaffney
 Associate Planner
 Inyo County Planning Department

 Date

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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I. AESTHETICS: Would the project:

a) Have a substantial adverse effect on a scenic vista?

The project will require the temporary erection and operation of drilling rigs and temporary use of multiple sites by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control, and site restoration procedures. The drilling sites will be used for a limited period of time, consistent with NPS permit requirements and limitations imposed by Inyo County. Mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to accomplish the project. The drill rig, equipment and support vehicles shall stay within the boundaries of the area flagged by NPS staff during all drilling, well construction, development and pump testing activities. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to drilling sites. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph. Due to the implementation of mitigation measures applied by Inyo County regarding site disturbance and restoration, as well as the small footprint of the drilling areas,, the project will not result in any changes that could significantly impact scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The project does not have the potential to damage scenic resources due to implementation of mitigation measures imposed by Inyo County regarding site disturbance and restoration, as well as the small footprint of the drilling area. The project will require the temporary erection and operation of drilling rigs and temporary use of multiple sites by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control, and site restoration procedures. The drilling sites will be used for a limited period of time, consistent with NPS permit requirements and limitations imposed by Inyo County. Mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to

accomplish the project. The drill rig, equipment and support vehicles shall stay within the boundaries of the area flagged by NPS staff during all drilling, well construction, development and pump testing activities. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to the drilling sites. Parking shall be confined to the designated construction areas.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

The project does not have the potential to damage scenic resources due to implementation of mitigation measures imposed by Inyo County regarding site disturbance and restoration, as well as the small footprint of the drilling area. The project will require the temporary erection and operation of drilling rigs and temporary use of multiple site by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control, and site restoration procedures. The drilling sites will be used for a limited period of time, consistent with the NPS permit requirements and limitations imposed by Inyo County. Mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to accomplish the project. The drill rig, equipment and support vehicles shall stay within the boundaries of the area flagged by NPS staff during all drilling, well construction, development and pump testing activities. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to drilling sites. Parking shall be confined to the designated construction areas.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project will not create any permanent or significant new sources of light or glare. Lights will be temporarily placed around the drill rig for nighttime drilling activities.

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

There is no prime or unique farmland, or farmland of Statewide importance within or adjacent to the project area.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

There are no lands zoned for agricultural use within or adjacent to the project area. There are no Williamson Act lands contracted in Inyo County.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

This project will not change the existing environment and will not convert farmland to non-agricultural use as there are no agricultural lands in or adjacent to project area.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The project will not result in the creation of new sources of air pollutants or any changes to vehicle use patterns and could not, therefore, result in any impact on air quality or violate any air quality management plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The project will not result in the creation of new sources of air pollutants or any changes to vehicle use patterns and could not, therefore, result in any impact on air quality or violate any air quality management plan.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

There could be minimal amounts of fugitive dust due to drilling operations. The NPS has determined that this dust will quickly dissipate. All equipment and vehicles will be equipped with standard emission reduction devices.

Carbon emissions from onsite vehicles and equipment is expected to be minimal. The project will not result in the creation of any significant new sources of air pollutants or any changes to vehicle use patterns and could not, therefore, result in any impact on air quality or violate any air quality management plan.

d) Expose sensitive receptors to substantial pollutant concentrations?

The project will not expose any sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people?

This project will not expose a substantial number of people to objectionable odors.

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

At the Echo Canyon site, one sensitive plant species ([Salva funereal], Death Valley sage) is known to occur within the project area, and nine additional sensitive species have a high to moderate probability of occurrence (see the Environmental Screening Form for the complete list). The NPS has concluded that due to the implementation mitigation measures, impacts to these species will be minimal. The surrounding area at the Echo Canyon site is also used by the desert bighorn sheep for lambing during the months of January-March. No drilling will take place at the Echo Canyon drill site during these months. At Nevares Spring, five sensitive species occur (see Environmental Screening Form for the complete list). Again, the NPS has concluded that incorporation of mitigation measures will not cause significant effects to these species. No species of concern occur at the Furnace Creek drill sites. Mitigation measures for all drill sites include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to accomplish the project. The drilling rigs, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited. Soil and rock cuttings generated during drilling shall be contained or stockpiled at the site. Stockpiled materials are to be spread at the drill site following air-drying. Straw or hay bales, or other imported vegetation, may be used as erosion control or turbidity control devices. The drill rigs, equipment and support vehicles shall stay within the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to drilling sites. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph. Drilling will occur consistent with time limitations imposed by the NPS.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

There is no riparian habitat in the areas surrounding Echo Canyon and the Furnace Creek drill sites.

The NPS determined that one mapped wetland near Nevares Spring will not be impacted by drilling operations. The project was reviewed for compliance with Executive Order 11990, and the NPS does not expect adverse impacts to the wetland near Nevares Spring..

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

At the Nevares Spring drill site, there is one mapped wetland. The project was reviewed for compliance with Executive Order 11990, and the NPS does not expect adverse impacts to wetlands. There are no federally protected wetlands on or near the project areas. All cuttings from drilling operations will be deposited near the borehole and graded onsite.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? |

The project will require the temporary erection and operation of drilling rigs and temporary use of multiple sites by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control and site restoration procedures. At the Echo Canyon drill site, the surrounding area is used by the Desert Bighorn sheep for lambing during the months of January-March. No drilling will take place at Echo Canyon during these months. The drilling sites will be used for a limited period of time, consistent with the permit requirements and limitations imposed by the NPS. Mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to accomplish the project. The drilling rig, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited. Soil and rock cuttings generated during drilling shall be contained or stockpiled at the site. Stockpiled materials are to be spread at the drill site following air-drying. Straw or hay bales, or other imported vegetation, may be used as erosion control or turbidity control devices. The drill rigs, equipment and support vehicles shall stay within the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to drilling sites. Parking shall be confined to the designated construction areas. Off pavement speeds shall be kept under 20 mph. Due to the implementation of mitigation measures applied by the County regarding site disturbance and restoration, as well as the small footprint of the drilling area, the project will not result in any adverse

effects on the movement of any species or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project will not conflict with local policies or ordinances protecting biological resources. The NPS has determined that the project is in conformance with the California Desert Conservation Act of 1980, which governs land use for the drill site.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The NPS has determined that the project is in conformance with the California Desert Conservation Act of 1980. The project will not conflict with any existing Habitat Conservation Plan protecting biological resources.

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No significant historical resources exist at the drilling site.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

There are no known archaeological resources in the proposed drilling areas. The drilling sites will be used for a limited period of time, consistent with permit requirements and limitations imposed by the NPS. If human remains are found, the Inyo County Sheriff and Coroner, as well as the NPS archeologist, shall be called to the site. If it is determined that the remains are of Native American origin, the California Native American Heritage Commission shall be notified and they will determine the "most likely descendents." That tribe shall then determine how to handle the remains according to tribal customs and pursuant to California Public Resources Code §5097.98. Other mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting the footprint of development to the smallest feasible area to accomplish the project. The drilling rigs, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited. The drill rig, equipment and support vehicles shall stay within the boundaries of an area flagged by NPS staff during the drilling, well construction, development and pump testing activities. Due to the implementation of mitigation measures applied by Inyo County regarding discovery of human remains

at the drill site, the project will not cause any adverse change in the significance of any archeological resources pursuant to Section 16054.5

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no unique paleontological or geologic resources at the project sites.

d) Disturb any human remains, including those interred outside of formal cemeteries?

No known human remains are interred below the project area. The drilling sites will be used for a limited period of time, consistent with permit requirements and limitations imposed by the NPS. If human remains are found, the Inyo County Sheriff and Coroner, as well as the NPS archeologist, shall be called to the site. If it is determined that the remains are of Native American origin, the California Native American Heritage Commission shall be notified and they will determine the "most likely descendents." That tribe shall then determine how to handle the remains according to tribal customs and pursuant to California Public Resources Code §5097.98. Other mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting the footprint of development to the smallest feasible area to accomplish the project. The drilling rigs, drilling equipment and support vehicles shall be thoroughly cleaned using a hot water pressure wash before entry on to NPS land. All drilling fluids/liquids shall be contained during drilling, well construction and well development. Fluids can be contained in excavated mud drilling pits at drill site. Evaporative fluid disposal is acceptable. Toxic drilling fluids are prohibited. The drill rigs, equipment and support vehicles shall stay with the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities.

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. |

The project sites are outside the boundary of the Alquist-Priolo Earthquake Fault Zone as identified on State of California Earthquake Fault Zone Map, SW ¼ Bishop Quadrangle, effective January 1, 1990. Due to the seismically active nature of the entire region, earthquakes could occur at any time in the vicinity. The project does not involve the construction of any new buildings. Therefore, there is no potential impact.

- | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| <p>ii) Strong seismic ground shaking?
 <i>The project site is outside the boundary of the Alquist-Priolo Earthquake Fault Zone. The project will not result in any activities or permanent structures which could expose people of structures to potential significant adverse effects.</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>iii) Seismic-related ground failure, including liquefaction?
 <i>Ground is not subject to liquefaction.</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>iv) Landslides?
 <i>Project areas are relatively level.</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>b) Result in substantial soil erosion or the loss of topsoil?
 <i>Project will not cause substantial soil erosion of the loss of topsoil due to mitigation measures identified by the County. Mitigation measures include limiting off-road driving, excavation, and other surface disturbance to the smallest feasible area to accomplish the project, limiting removal of perennial shrubs to the smallest feasible area to accomplish the project, and limiting the footprint of development to the smallest feasible area to accomplish the project. The drill rigs, equipment and support vehicles shall stay with the boundary of areas flagged by NPS staff during the drilling, well construction, development and pump testing activities. Soil and rock cuttings generated during drilling shall be contained or stockpiled at the site. Stockpiled materials are to be spread at the drill sites following air-drying. Straw or hay bales, or other imported vegetation, may be used as erosion control or turbidity control devices. Vehicle traffic shall be confined to existing open routes. All the drilling equipment shall be kept within the designated drilling areas except for the gravel paved access roads adjacent to drilling sites. Parking shall be confined to the designated construction areas.</i></p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
 <i>No. Project areas are relatively flat and soils are stable.</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
 <i>This project is not located on soils that are subject to expansion.</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The project does not involve the creation of any new septic or sewage facilities. Groundwater discharged as a result of drilling operations will be routed into existing drainage ditches.

VII. HAZARDS AND HAZARDOUS MATERIALS:

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous or toxic drilling materials are not allowed at the project sites. A fully contained, portable toilet will be onsite.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous or toxic drilling materials are not allowed at the project sites.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project sites are not within ¼ mile of an existing or proposed school. The project does not involve the production of hazardous or acutely hazardous materials.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project locations are not located on sites which are listed as hazardous materials sites pursuant to Government Code Section 65962.5.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The project is not located within two miles of any airport, nor is the project within the boundaries of any airport land use plan.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No. No private airstrips exist in or near the area.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project will not interfere with any emergency response or evacuation plans of Inyo County or the NPS.

- h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?
- No. The Nevares and Echo Canyon drill sites are located away from people or any structures. The Furnace Creek drill sites will be appropriately marked to keep people away from the drill rig and associated equipment.*

VIII. HYDROLOGY AND WATER QUALITY: Would the project:

- a) Violate any water quality standards or waste discharge requirements?
- The project will not violate any water quality standards or waste discharge requirements. No hazardous substances are allowed at the project sites, and all pump test water will be discharged into the existing drainage ditches.*

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
- No. Groundwater-related activities will be limited to the development and pump testing of the well, and will not result in significant impact to area groundwater supplies. Wells will be pump-tested for a 72 hour period at about 25 gallons a minute to determine hydraulic properties. Pump test water will be discharged into the existing drainage ditches.*

- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
- No. No changes to existing waterway or area drainage patterns will result from this project, nor will the rate or amount of surface runoff be significantly or permanently altered due to diversion of pump test water into pre-existing drainage ditches.*

- d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site?
- No. No changes to existing waterway or area drainage patterns will result from this project, nor will the rate or amount of surface runoff be significantly or permanently altered due to diversion of pump test water*

into existing drainage ditches.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The project will not result in impacts to existing or planned drainage systems nor generate polluted runoff. All pump test water will be diverted into existing drainage ditches. There is no potential for polluted runoff because toxic substances are not allowed at the drill site in accordance with County mitigation measures.

f) Otherwise substantially degrade water quality?
Water quality will not be degraded because toxic substances are not permitted at the drill sites, and pump test water will be unaltered as it enters into pre-existing drainage ditches..

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No. The project site is outside of a flood hazard area as shown on FEMA Flood Insurance Rate Map No. 060073-0225B, 6 dated 9-4-85 and the project does not involve the creation of any new housing. The drilling site is in FEMA Zone C.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The drill sites at Echo Canyon and Furnace Creek are within the 100 year floodplain, and the project was reviewed by the NPS under Executive Order 11988. The NPS found that the project was in compliance with the order.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No. There are no levees or dams near the project area. The project sites are outside of a flood hazard area as shown on FEMA Flood Insurance Rate Map No. 060073-0225B, 6 dated 9-4-85, and the project does not involve the creation of any new housing.

j) Inundation by seiche, tsunami, or mudflow?

Inyo County is 300 miles from the Pacific Ocean.

IX. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?

No. No established communities exist at or near the drilling sites at Echo Canyon or Nevares Spring. The Furnace Creek drill sites will not physically divide an established community, and drill operations will result in only temporary disturbances.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project

(including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The project does not conflict with applicable land use plans, policies or regulations.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

The applicable NPS land use plans that govern land use and habitat conservation on and around the proposed drilling sites provide for research and monitoring activities proposed for the project. The mitigation measures necessary to pursue the project have been developed by the NPS and the County, and are incorporated into the project.

X. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No known mineral resources will be lost as a result of this project.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No such resources have been identified on-site at the project area.

XI. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No. All equipment on vehicles and drill rig will have standard noise abatement devices. Due to the implementation of mitigation measures applied by the County regarding site disturbance, noise abatement, and the small footprint of the drilling areas, there will no significant impacts from noise. The drilling sites will be used for a limited period of time, consistent with NPS permit requirements, to prevent noise disruption to Park visitors, employees, and wildlife

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? |

No. The project will require the temporary erection and operation of drilling rigs and temporary use of multiple sites by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control and site restoration procedures. On-site personnel will be required to follow standard industry practice with respect to protection against noise and vibration.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No. No permanent increases in ambient

noise levels will result from this project. The drilling sites will be used for a limited period of time, consistent with the permit requirements and limitations imposed by the NPS.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Temporary increases in ambient noise levels will result from this project. The drilling sites will be used for a limited period of time, consistent with NPS permit requirements and limitations imposed by the County. Due to the implementation of mitigation measures applied by the County regarding site disturbance, the and small footprint of the drilling areas, the project will not result in significant impacts from noise.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

This project is not located within two miles of an airport.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The drilling sites are not located in the vicinity of a private airport.

XII. POPULATION AND HOUSING: Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No. This project will not result in the creation or elimination of population, housing, roads, or related infrastructure.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No housing units will be displaced as a result of this project.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No people will be displaced by this project.

XIII. PUBLIC SERVICES: Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new of physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?
Southern Inyo Fire Protection District will provide any necessary fire protection.

Police protection?
Inyo County Sheriff.

Schools?
No.

Parks?
No.

Other public facilities?
No

XIV. RECREATION: Would the project:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
No. There will be no increase in use of existing parks or other recreational facilities as a result of this project.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?
No. No new recreational facilities will need to be built due to this project.

XV. TRANSPORTATION/TRAFFIC: Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
No substantial increases in traffic will result from the project.

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
No. Inyo County does not have a congestion management agency.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
No. Air traffic patterns will not change due to this project.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
No. No traffic hazards will be created due to the project.

e) Result in inadequate emergency access?

Emergency access is adequate and will not be affected by this project.

f) Result in inadequate parking capacity?
The sites have adequate parking and no additional parking will be required.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?
This project will not alter any adopted policies or programs supporting alternative transportation.

XVI. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
The project does not involve any wastewater treatment facilities.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
No new water or wastewater treatment facilities will be required for this project. A fully contained, portable toilet will be located onsite.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
No new construction or drainage facilities will be required. Groundwater-related activities will be limited to the development and pump testing of the well, and will not result in significant impact to area groundwater supplies. Wells will be pump-tested for a 72 hour period at about 25 gallons a minute to determine hydraulic properties. Pump test water will be discharged into an existing drainage ditches.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
No new or expanded water supplies will be needed for this project.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
The project will not create a need for wastewater treatment.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
Yes. Drilling cuttings and drilling mud will be disposed of consistent with the permit requirements and limitations imposed by the NPS..

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Yes. Drilling cuttings and drilling mud will be disposed of consistent with the permit requirements and limitations imposed by the NPS.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

No. The project will require the temporary erection and operation of drilling rigs and temporary use of multiple sites by vehicles, machinery and personnel necessary to complete project activities, including drilling, sampling retrieval and site impact control and site restoration procedures. The drilling sites will be used for a limited period of time, consistent with the permit requirements and limitations imposed by the NPS and Inyo County. No fish or wildlife populations are threatened by the project. Due to the implementation of mitigation measures regarding site disturbance and restoration, as well as the small footprint of the drilling areas), the project will have a less than significant impact on the environment

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

No. Proposed drilling activities at the sites strictly comply with the mitigation measures identified by the NPS and Inyo County. No cumulatively significant impacts to the environment will result from drilling operations in the project areas.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No. Toxic or hazardous substances are prohibited at the drill sites. All drilling personnel at the sites shall be properly trained and shall wear required safety equipment at all times. All equipment shall be in proper working order. Drilling operations shall be conducted using safe and standard methods. All impacts caused by drilling operations will be less than significant and temporary. Site restoration activities will be conducted after the completion of drilling, and no unsafe conditions will remain after drilling operations are completed.

