



UNEV Permit Application Form U201 APPLICATION ATTACHMENTS - General Class 5 Wells

Attachments are required to be submitted with all UNEV permit applications. Be sure you choose the appropriate "Attachments" Form from the list below that applies to the type of well you will be using. Go to <http://ndep.nv.gov/bwpc/forms/html#uic> if you need to obtain one of these other forms.

- I. Form U201 – CLASS 5 (types not listed below)
- II. Form U202 – CLASS 2, CLASS 3, or CLASS 5 GEOTHERMAL
- III. Form U203 – CLASS 5 REMEDIATION or TRACER TESTING

IF APPLICATION IS FOR AN UIC GENERAL PERMIT, STOP HERE – do not provide the attachments below. Instead, attach the specific Notice of Intent (NOI) for that general permit.

Application Attachments for CLASS 5 INJECTION WELLS – ALL OTHERS

Read the instructions for preparing the attachments carefully and refer to the regulations (NAC 445A.867). The ability to process your application for a permit depends heavily on the completeness and accuracy of the attachments. Attachments shall be submitted with the UIC Permit Application for Injection Wells.

Please Note: the attachments list was updated in 2006, and are in a different order than in previous editions. Additionally, some attachments have been expanded for clarification, and permit renewal requirements have been added.

Attachments

- A. **MAPS AND CROSS SECTIONS OF USDW's** - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water (USDW) within the area of review, their position relative to the injection formation and the direction of water movement, where known, in every USDW which may be affected by the proposed injection. Include depth to groundwater, groundwater flow direction/rate, and hydraulic conductivity. Submit depth to top and bottom of all underground sources of drinking water and geologic name which may be affected by the injection.

A baseline water analysis of the receiving groundwater (zone of injection) of the injection wells (not impacted by contamination) must be submitted with the application. The applicant may wish to provide more than one sample to adequately characterize the receiving groundwater for baseline purposes. It is the responsibility of the applicant to determine background water quality conditions (physical and chemical) in the region immediately surrounding the injection wells, and determine current baseline water quality in the ground/surface water above the injection zone(s) and of the receiving groundwater. Determination of baseline and background conditions may require multiple sampling points and/or dates. Keep in mind baselines values in the application may be reflected in permit limitations in the UIC permit, so the more background data an applicant uses, the better actual conditions will be represented.

The sample(s) must be analyzed for volatiles (EPA method 8260B), inorganics (UIC Sample List 1), and

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other relevant compounds as needed.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- B. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA** - Submit maps and cross sections detailing the geologic and hydrogeologic structure of the local area (including the lithology of injection and confining intervals thickness, depths and fracture pressure) and generalized maps and cross sections illustrating the regional geologic setting.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- C. AREA OF REVIEW METHODS** - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of 1 mile from the well bore unless the use of an equation is approved in advance by the Director.

FOR RENEWAL

No action required, unless necessary.

- D. MAPS OF WELLS/AREA AND AREA OF REVIEW (AOR)** - Submit a topographic map, extending at least one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste, treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable, i.e. distributing injection fluid to all wells in the area, including all system monitoring points). Within the area of review, the map must show the following:

The number of wells and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, public water supply systems, and other pertinent surface features, including residences, roads, faults (if known or suspected), etc.

FOR RENEWAL

Please review the original and subsequent renewal applications, and update the maps of wells and AOR. Identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in this renewal application.

- E. CORRECTIVE ACTION PLAN AND WELL DATA** - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those in the map required in part B, which penetrates the proposed injection zone. Such data shall include the following:

A description of each well's type, construction, date drilled, location, status, depth, record of plugging and/or completion, and any additional information the Director may require.

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FOR RENEWAL

Provide information on any wells constructed within the AOR since the last renewal or original application.

- F. **CONSTRUCTION PROCEDURES and DETAILS** - Discuss the injection well construction procedures to be utilized. This should include details of the design and construction details.

For cased wells: include casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring programs, and proposed annulus fluid.

For Subsurface Fluid Distribution Systems (leach/drain fields): provide details on the construction of all system components

Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well. Also required with all applications is a schematic of the complete surface/subsurface conveyance system, including all process/treatment systems, additive ports, valves and gauges, pumps, etc.

FOR RENEWAL

Submit a current schematic for each injection well constructed. Include a list of workovers on each well, with type and date of work. Please review the original application, and identify any changes to construction procedures proposed and/or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- G. **INJECTION PROCEDURES** - Describe the proposed injection procedures including pump, surge, tank, etc.

For Class 5 wells, obtain data on physical and chemical characteristics of the formation fluids and fluid pressure. For high volume injection wells, data on fracture pressure may be required. A recent sample from the receiving water must be analyzed for both volatiles (EPA method 8260B), inorganics (UIC Sample List 2), and other relevant compounds as needed.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- H. **OPERATING DATA** - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) identify whether injection occurs under pressure or not, if under pressure average and maximum injection pressure; (3) nature of annulus fluid, if used; and (4) source and analysis of the physical and chemical characteristics of the injection fluid. The chemical analysis shall be for the primary and secondary drinking water constituents from UIC Sample List 1, including the eight major metals, and adjusted gross alpha and gross beta unless specified otherwise by UIC staff.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

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- I. **OPERATIONS & MAINTENANCE (O&M) MANUAL: SAMPLING (QA/QC) & CONTINGENCY PLAN** – A basic O&M Manual shall be submitted as part of the UIC application package. The manual should include standard sampling practices and Quality Assurance/Quality Control (QA/QC) plan for field sampling; discussion of standard routine operating instructions and maintenance procedures (e.g. how and when activated carbon is changed out.) Outline contingency plans to cope with all shut-ins or well failures, so as to prevent migration of fluids to the surface. The contingency plan should include provisions for reporting violations and a statement assuring injection will cease in the event of a well failure or if the receiving water is degraded.

FOR RENEWAL

Please update the manual to reflect current conditions and activities at the time of renewal. If an O&M Manual has never been submitted for a permitted well facility, a manual will be required at the time of the next renewal.

- J. **AQUIFER TESTING AND STIMULATION PROGRAM** – Please provide all results of any aquifer tests run in the area of this injection well/system, or discuss any proposed testing to be conducted prior to or after injection activities commencing. Discuss any stimulation activities associated with the injection well. Outline any proposed stimulation program

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- K. **CHANGES IN INJECTED FLUID** - Discuss expected changes in pressure, chemistry, native fluid displacement, and anticipated direction of movement of injected fluid.

FOR RENEWAL

Please review monitoring data of the life of the permit along with the original application to discuss what observations can be made regarding the chemistry of injected fluid and receiving ground water; and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- L. **MONITORING PROGRAM** - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells with depths and screened intervals as appropriate and a discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized describe the program and compare it to individual well monitoring. All Aquifer Storage and Recovery (ASR) permits have a yearly monitoring report due on January 31 and a semi-annual monitoring report due on July 31 of each year per the Nevada Revised Statutes.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- M. **PLUGGING COST ESTIMATE AND PLAN** - Submit a current Cost Estimate and Plan to plug all wells once they become abandoned pursuant to NAC 445A.923 through 925. First: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs,

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including the method used to place the well in a state of static equilibrium prior to placement of the plugs; Second, based on 1, 2, and 3 above, provide a cost estimate of materials, equipment and labor for plugging and abandonment of the well. For a Class 3 well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDW's.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.

- N. **DESCRIPTION OF BUSINESS** - Give a brief description of the nature of the business at the facility where injection is occurring. If the injection activity is used as a remediation effort, provide a brief historical summary of how the site was impacted.

FOR RENEWAL

No action required unless necessary.

- O. **MECHANICAL INTEGRITY** - Results of any mechanical integrity testing, if performed, including description of test, date performed, and name of Division representative witnessing test.

FOR RENEWAL

Please review the original application, and identify any changes or new work performed over the last 5 years that is different than in the original application, please summarize in the renewal application.