CHAPTER 18

IN SITU MINING

Section 1. **Definitions.**

(a) "Abandoned well" means a well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be used for its intended purpose or for observation purposes.

(b) "Affected Land or Affected Area" means as defined in W.S. § 35-11-103(e)(xvi).

(c) "Annular Space" means the space between the well casing and the borehole or the space between two or more strings of well casing.

(d) "Area Permit" means that, for the purposes of this Chapter, the Administrator may issue a permit on an area basis, rather than for each well individually, provided that the permit is for UIC Class III Wells:

(i) Described and identified by location in permit application(s) if the wells are existing wells, except that the Administrator may accept a single description of wells with substantially the same characteristics;

(ii) Located within the same well field, facility site, reservoir, project or similar unit in the same state;

(iii) Operated by a single owner or operator;

(iv) Used to inject non-hazardous waste; and

~~(v) Other than Class VI wells; and~~

(vi) Located within an approved well field data package.

(e)~~(a)~~ ~~"Background"~~ "Baseline" means~~, for the purposes of in situ mining,~~ the constituents or parameters and the concentrations or measurements which describe water quality and water quality variability prior to the injection of recovery fluid.

(f) "Best Practicable Technology" means as defined in W.S. § 35-11-103 (f)(i).

(g) "Catastrophic collapse" means the sudden and utter failure of overlying strata caused by removal of underlying materials. This can occur in salt solution mining and other processes that remove reservoir material to recover product.

(h) "Class III well" means a well used for in situ mining which injects for extraction

of minerals, or products, or recovers recovery fluids, minerals or products, including a well used in:

(i) Mining of sulfur by the Frasch process;

(ii) In situ mining of uranium or other metals; this category includes in situ production from ore bodies that have not been conventionally mined by means of an open pit or underground excavation;

(iii) In situ mining of salts, trona, or potash;

(iv) Underground coal gasification operations;

(v) Solution mining of open pits or underground excavations used for the production of minerals, such as stopes leaching;

(vi) Fossil fuel recovery including coal, lignite, oil shale, and tar sands; or

(vii) Experimental technologies, such as pilot scale in situ mining wells in previously unmined areas.

(i) "Compliance schedule" means a schedule of remedial activities included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the applicable statues and regulations.

(j) "Confining zone" means a geological formation, group of formation, or part of a formation that is capable of significantly limiting fluid movement above or below an injection zone.

(k) "Contaminant" means any unwanted or unauthorized physical, chemical, biological, or radiological substance or matter in water.

(l) "Excursion" means as defined in W.S. § 35-11-103(f)(ii).

(m~~l~~) "Excursion detection" means the detection of any migrating injection or recovery fluids at or beyond the immediate in situ mining area. Excursion detection could include, but is not limited to:

(i) Groundwater monitoring wells;

(ii) Thermocouple devices;

(iii) Gas monitoring devices.

(n~~m~~) "Exempted aquifer" means an aquifer or its portion that meets the criteria in the

definition of "Underground Source of Water" but which has been exempted according to the procedures of Section 11 of this Chapter.

(on) "Flow rate" means the volume per time unit given to flow of gases or other fluid substance which emerges from an orifice, pump, turbine, or passes along a conduit or channel.

(po) "Fluid" means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas or any other form or state.

(qp) "Formation" means a body of rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.

(rq) "Formation fluid" means a "fluid" present in a "formation" under natural conditions as opposed to introduced fluids.

(sr) "Groundwater restoration" means as defined in W.S. § 35-11-103(f)(iii).

(ts)~~(b)~~ "Injection well" means~~, for the purposes of in situ mining,~~ a well or conduit through which recovery fluid is introduced into the subsurface. If a well is used for both injection and recovery, it is considered an injection well for the purposes of this Chapter until the operator has adequately demonstrated to the Administrator that the well has been converted to a use other than injection, per the requirements of Section 10 of this Chapter.

(ut) "In situ mining" means as defined in W.S. § 35-11-103(f)(iv).

(vu)~~(c)~~ "License area" means, with respect to an In Situ Research and Development License, an area described in the license application within which all affected land and water is contained.

(wv) "Mechanical integrity" means an injection well, a production well, or a monitor well where there is no significant leak in the casing, tubing, or packer, and there is no significant fluid movement into an unauthorized zone through vertical channels adjacent to the injection or recovery well bore.

(xw) "Mechanical Integrity Testing (MIT)" means the demonstrations that there are no significant leaks or fluid movement and is based on the results of the mechanical integrity testing required in Section 9 of this Chapter. A schedule and methods for Mechanical Integrity Testing shall be approved by the Administrator and included in the permit or Research and Development Testing License application (per Section 5(c)(vii) of this Chapter) and shall constitute requirements of the permit.

(yx) "Mining permit or permit" means as defined in W.S. § 35-11-103(c)(xi).

(zy) "Monitor well" means as defined in Chapter 1, Section 2(cj).

(aaz) "Monitor Well Ring" means the series of monitor wells surrounding a wellfield

used to assess possible chemical and physical changes in groundwater due to in-situ mining.

(aba)~~(e)~~ "Production Well or Recovery Well" means~~, for the purposes of in-situ mining,~~ a well ~~or conduit~~ through which a recovery fluid~~,~~ or soluble mineral~~, or product~~ is produced or recovered from the subsurface. If a well is used for both injection and recovery, it is considered an injection well for the purposes of this chapter, until the operator adequately demonstrates to the Department that the well has been converted to use(s), other than injection, per requirements of Chapter 10 of this Chapter.

(acb) "Production Zone" means as defined in W.S. § 35-11-103(f)(v).

(ade) "Public water supply" means as defined in W.S. § 35-11-103(c)(viii).

(aed)~~(d)~~ "Receiving strata" means~~, for the purposes of in situ mining,~~ the geologic unit within which the production zone is contained.

(afe) "Recovery fluid" means any material which flows or moves, whether semi-solid, liquid, sludge, gas or other form or state, used to dissolve, leach, gasify or extract a mineral. This may also include restoration fluid.~~as defined in W.S. § 35-11-103(f)(vii).~~

(agf) "Research and Development License" means the permitting vehicle issued by the Administrator, per W.S. § 35-11-431 et seq., approving research and development testing as defined in W.S. § 35-11-103(f)(viii).

(ahg) "Sealing" means the operation whereby a cement slurry or other approved material is pumped into a drilled hole and/or forced into a well's annulus between the borehole and casing. "Sealant materials" are materials that are stable, have very low to no permeability and possesses minimum shrinking properties such that they are optimal sealing materials for well plugging and drill hole abandonment.

(aih) "Target Restoration Values" means the numerical groundwater protection standards, developed on a parameter-by-parameter basis for water quality constituents, used to assess the success of groundwater restoration within the production zone.

(aji) "The Division" means the Land Quality Division of the Wyoming Department of Environmental Quality.

(akj) "Topsoil" means as defined in W.S. § 35-11-103(e)(xiv).

(alk) "Underground Injection Control (UIC)" program under Part C of the Safe Drinking Water Act (42 USC 300h *et seq.*), including an "approved State program".

~~(f) "Uses for which the water was suitable" means, with respect to in situ mining, those uses of the premining groundwater which are or could have reasonably been developed considering established water quality standards and the premining groundwater quality~~

~~conditions. Such uses shall include, but are not limited to, municipal and domestic drinking water, industrial, agriculture and wildlife uses.~~

(am~~l~~) "Underground Source of Water (USW)" means:

(i) Those aquifers or portions thereof which have a total dissolved solids content of less than 10,000 milligrams per liter (mg/L) and which contain a sufficient quantity of water to supply a public water supply as defined in W.S. § 35-11-103(c)(viii);

(ii) Those that can be classified as a "known source of supply" pursuant to Chapter 8, Section 4 (c), Water Quality Division Rules and Regulations.

(an~~m~~) "Upper Control Limit (UCL)" means a value greater than the maximum value of a chemical or physical parameter that can be attributed to natural fluctuations and sampling and agree upon by the Administrator and the operator prior to initiation of mining. UCLs are used to determine when there is movement of recovery fluid out of authorized areas or unapproved changes to a chemical or physical parameter. For certain parameters, such as pH, a UCL may be defined as an acceptable range of values.

(ao~~n~~) "Waters of the State" means as defined in W.S. 35-11-103(c)(vi).

(ap~~o~~) "Well" means a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or an improved sinkhole, or a subsurface fluid distribution system, as codified in 40 CFR 144.3.

(aq~~p~~)~~(g)~~ "Well ~~fluid~~ field area" means~~, for the purposes of in situ mining, the surface area containing injection and recovery wells~~ the surface area overlying the injection and recovery zones. This area may be all or a portion of the entire area proposed for the injection and production of recovery fluid throughout the life of the mine.

Section 2. **General Requirements.**

It is the operator's responsibility for the submission of an application to obtain a permit in accordance with these regulations. All applications for mining permits and amendments must be submitted in a format satisfactory to the Administrator. The applicant shall provide information that is complete, current, presented clearly and concisely, and supported by appropriate references to technical and other written material. The Administrator may require the applicant to supplement the application with information beyond that specifically required by these rules if the Administrator believes that additional information is necessary to make an informed decision.

(a) In addition to the requirements of this Chapter, ~~Chapter 1,~~ Chapter 2 – Coal Rules and Regulations ~~, Section 1, Section 2 (a)(vi)(A) and (S) Section 2(b)(iv)(E), Chapter 4, Section 2 (excepting subsections (b)(x) and (c)(xi), (g)(viii) and with respect to (k)(i), reclamation shall be completed within two years following groundwater restoration), and~~

~~Chapter 13 of these regulations~~ shall apply to coal in situ mining ~~operations~~ permits and coal in situ Research and Development licenses.

(b)~~(a)~~ Applicable Sections of Chapters 8 ~~VIII~~ and ~~IX~~ 27, Water Quality Division Rules and Regulations, regarding groundwater use classification, quality standards, and testing procedures, and, outside the aquifer exemption boundary, applicable Maximum Contaminant Levels (MCLs) from the U.S. Environmental Protection Agency Rules (40 CFR 141) shall also apply to in situ mining or Research and Development license operations.

(c)~~(b)~~ No in situ mining operation shall commence or be conducted unless a valid mining permit or license has been issued to the operator from the Department. Applications for an In Situ Mining Permit or Research and Development license shall be filed with the Administrator of the Land Quality Division. The applicant shall file ~~six~~ two copies of the application ~~and~~ to the Administrator ~~of the Land Quality Division shall forward three copies for filing with the Administrator of the Water Quality Division. Applications shall be~~ in a format required by the ~~Department~~ Administrator.

(d)~~(c)~~ The ~~Land Quality Division and Water Quality Division~~ Administrator shall review the in situ mining permit or license application and determine its suitability for publication in accordance with W.S. § 35-11-406. A ~~single~~ permit or Research and Development license shall be issued by the Director upon the recommendations of the Administrators ~~of the Land Quality Division and Water Quality Division. A single license shall be issued by the Administrator of the Land Quality Division upon concurrent approval of the Administrator of the Water Quality Division~~. In meeting the requirements of 35-11-406(a)(iii)(ix) the map should extend a minimum of one mile beyond the permit boundary.

(e) Area permits shall specify the area within which underground injections or recovery operations are authorized and the requirements for construction, monitoring, reporting, operation, and abandonment for all well authorized. The area permit may authorize the permittee to construct and operate, convert, or plug and abandon wells within the area permit provided the permittee notifies the Administrator at such times as the permit requires, the additional well meets the requirements under the definition of "area permit" and this section and the cumulative effects of drilling and operation of additional injection wells are considered by the Administrator during evaluation of the permit application and are acceptable to the Administrator. The area permit does not allow for the construction of non-bonded infrastructure.

(f)~~(d)~~ Operators having an in situ mining permit or license issued before the effective date of these regulations shall~~, by no later than May 25, 1980,~~ present evidence demonstrating compliance with the requirements of W. S. § 35-11-426 through W.S. § 35-11-436 and this Chapter. The Administrator shall review such evidence and shall advise the operator in writing of such additional information or procedures necessary to satisfy the provisions of this Chapter and of W.S. § 35-11-426 through W.S. § 35-11-436 within one (1) year of the effective date of this Chapter.

(g) All applications shall be signed by a responsible corporate officer. All reports required by permits (including Annual Reports, Quarterly Monitoring Reports, and reports

related to excursion monitoring and control) or other information required by the Administrator which pertain to Class III injection wells shall be signed by a responsible corporate officer or duly authorized representative. Any responsible corporate officer or duly authorized representative signing a document under this Section shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations."

(i) "Responsible corporate officers" means:

(A) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs policy or decision-making functions for the corporation, or

(B) The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures, or

(C) In the case of a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(D) For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes:

(I) The chief executive officer of the agency, or

(II) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of the EPA).

(ii) "Duly authorized representative" means a person who is authorized to sign a document to be submitted to the Land Quality Division as part of the official record regarding an in situ mining permit or Research and Development license. A person shall quality for this title only if:

(A) The authorization is made in writing by a responsible corporate

officer;

(B) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operation of a well or well field, superintendent or position of equivalent responsibility.

(C) The written authorization is submitted to the Director.

~~(e) The operator shall verbally report any confirmed excursion to the Administrator within 24 hours, and shall submit within seven days thereafter a written report to the Administrators of the Land Quality Division and Water Quality Division, detailing the procedures for mitigating or controlling the excursion. The Administrator of the Land Quality Division may after consultation with the Director and Administrator of the Water Quality Division, terminate or modify the mining operation if an excursion is not controlled within 60 days following the confirmation of the excursion. An excursion is controlled when the movement of recovery fluid out of the production zone and into unauthorized areas has ceased.~~

~~(f) All wells and drill holes resulting from in suit mining operations shall be abandoned in accordance with Chapter 14 of these regulations and W.S. § 35-11-404.~~

Section 3. **~~Permit~~ Applications Content Requirements – Adjudication.**

(a) All applications for an in situ mining permit shall ~~contain:~~ include, at a minimum, the ~~Section 3(a) All~~ information and materials related to adjudication required pursuant to W.S. § 35-11-406(a)(i) through (vi)~~,~~ and (viii) through ~~(xiii)~~ (xiv). ~~and (xv), and W.S. § 35-11-406(b)(x) through (xii); and:~~

(b) All applications for an in situ mining permit shall include all the information included in Land Quality Division - Coal, Rules and Regulations, Chapter 1 and Chapter 2, Section 2 (Adjudication Requirements).

~~(b) A description of the land, geology and groundwater hydrology consistent with the extent and nature of the proposed surface disturbance and applicable in situ technology including:~~

~~(i) The past, present, and proposed post-reclamation use of the land, groundwater and surface water.~~

~~(ii) A soil survey which maps and describes the general distribution of the soils within the permit area. A detailed soil survey and associated laboratory analysis may be required for soils on the affected lands.~~

~~(iii) A description of the nature and depth of the topsoil that will be removed from proposed affected land prior to disturbance by mining activities.~~

~~(vii) The name, description and map of all surface waters within the permit area and on adjacent lands. A list and mapping of all adjudicated and permitted surface water and ground water rights within and adjacent to the permit area shall be provided.~~

~~(ix) A geochemical description of the receiving strata and any aquifers that may be affected by the injection of recovery fluid.~~

~~(xiii) A list of the indigenous vertebrate species by common and scientific names observed within the proposed permit area. Habitats for endangered species and important habitats and migration routes for other wildlife shall be identified and described. Surface waters supporting fish that may be affected by the operation shall be sampled for benthic invertebrates and periphytons.~~

~~(xiv) A description of climatic conditions of the site in accordance with the requirements of Chapter 2, Section 2(a)(vi)(D) and (E) of these regulations.~~

(c) All applications for an in situ mining permit shall include a description of the activities conducted by the applicant for which permits are required under State and Federal regulatory programs. Copies or identifying numbers of all permits or construction approvals received or applied for in association with the in situ permit area shall also be included with the permit application.

~~Section 3(c)(vii) A description of and design plan for all impoundments and, for impoundments containing wastes, a leakage monitoring plan. For impoundments holding toxic or acid-forming material, contingency plans to control unanticipated leakage shall be provided.~~

~~Section 3(c)(viii) Procedures for insuring that all acid-forming, or toxic materials or other materials constituting a fire, health or safety hazard encountered during or created by the mining process are promptly treated, confined or disposed of in a manner designed to prevent pollution of surface water or groundwater, degradation of soils and vegetation, or threat to human or animal health and safety.~~

~~Section 3(c)(x) A description of all temporary and permanent surface water diversions in accordance with the requirements of Chapter 4, Section 2(e)(iv) and (v) of these regulations.~~

~~Section 3(c)(xiv) Description of the mitigating measures used during mining to minimize disruption of important habitats and migration routes of wildlife.~~

~~Section 3(c)(xv) The procedure(s) used to protect the topsoil from excessive compaction, degradation, and wind and water erosion where stockpiling of topsoil is necessary.~~

~~Section 3(c)(xvii) Contour map(s) which accurately locate and identify the permit area and show the location of any public roads, dwellings, utilities and easements within the permit area and adjacent lands in relation to all proposed affected lands and proposed~~

~~activities associated with the operation including, but not limited to: plant site, chemical storage areas, well field areas, monitor wells, roads, temporary and permanent drainage diversions, impoundments, stockpiles for topsoil, ore product and waste, and all processing facilities.~~

~~Section 3(c)(xviii) A map(s) which shows the proposed sequence for mining and reclamation.~~

~~Section 3(d)(i)(A) The condition and quality of all affected groundwater will be returned to background or better, or~~

~~Section 3(d)(i)(B) The requirements of Section 3(d)(i)(A) cannot be achieved. In this event the condition and quality of all affected groundwater will at a minimum be returned to a quality of use equal to and consistent with uses for which the water was suitable prior to the commencement of the operation.~~

~~Section 3(d)(ii) In accordance with paragraph (i) of this subsection, the condition of groundwater restoration and the proposed procedures to achieve such restoration.~~

Section 4. **~~Annual Report~~ Application Content Requirements – Baseline Information.**

All applications for in situ mining permit shall contain:

(a) All information and materials required pursuant to W.S. § 35-11-406(a)(vii) through (xi) and (xv) and W.S. § 35-11-428(a)(i) and (ii).

(b) ~~Section 3(b)(xii) A survey of vegetative cover, productivity and species diversity on the proposed affected land determined by scientifically acceptable sampling procedures.~~ All applicable information and materials pertaining to vegetation, pursuant to Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 3 (Vegetation Baseline Requirements).

(c) ~~Section 3(b)(i) through (iii), Section (b)(vii), and Section 3(b)(xiii) through (xiv)~~ All applicable information and materials required pursuant to Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 4 (Other Baseline Requirements).

(d) Geology. A description of the geology shall include the requirements of Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 4(a)(viii) through (x) and the following information:

(i) ~~Section 3(b)(iv)~~Discussions, supported by ~~A description of the geology including~~ maps, cross-sections, ~~and supporting~~ 3-D modeling, and geologist's, driller's, and geophysical logs, which identifies:

(A) ~~f~~Formations and aquifers~~,~~;

(B) ~~g~~Geologic features that could influence aquifer properties;

(C) ~~and the a~~Areal and stratigraphic position of the production zone in relation to other geologic features~~.~~; and

(D) Structural features.

(ii) Discussion of geomechanical properties of coal and overburden, supported by laboratory testing or other analytical means, to include:

(A) Porosity;

(B) Permeability;

(C) Fractures; and

(D) Compressibility.

(iii) Discussion of the geochemical properties of coal, supported by laboratory testing, to include:

(A) BTU;

(B) Inorganic contaminants;

(C) Volatile organic compounds;

(D) Gas reactivity; and

(E) Ash content.

(e) Groundwater. A discussion of groundwater which may be affected in the permit area and adjacent areas which complies with Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 4(a)(xii), (xiii), and (xiv). In addition, the application shall discuss the following:

(i) ~~Section 3(b)(x) Locations and present owners of all water wells in use~~ For groundwater within the permit area and on adjacent lands~~,~~:

(A) ~~Section 3(b)(x)~~ The names (or numbers), descriptions, and a map of all wells installed for water supply or monitoring and all wells which penetrate the production zone. The description shall include: names of present owners, ~~including a description of~~ well completion data, producing interval(s), and variations in water level to the extent such information is available in the public records and from a reasonable inspection of the property. ~~The Administrator shall require a mapping of all wells within and adjacent to the permit area.~~

(B) A list and map of all adjudicated and permitted groundwater rights.

(ii) ~~Section 3(b)(xi)~~ A list and map ~~tabulation~~ of all abandoned wells and drill holes, giving the location, depth, producing interval(s), type of use, condition of casing, plugging procedures and date of completion for each well or drill hole within the permit area and on adjacent lands to the extent such information is available in public records and from a reasonable inspection of the property.

(iii) ~~Section 3(b)(vi)~~ A groundwater potentiometric surface contour map for each aquifer that may be affected by the mining process, including overlying and underlying aquifers in which monitoring wells are installed.

(iv) ~~Section 3(b)(viii)~~ A description of ~~A~~aquifer characteristics for the water saturated portions of the ~~receiving~~ strata proposed to be mined and aquifers which may be affected by the mining process~~,~~. This shall ~~which may~~ include, but is not limited to~~,~~:

(A) A~~a~~quifer thickness~~,~~;

(B) V~~v~~elocity and direction of groundwater movement~~,~~;

(C) S~~s~~torage coefficients or specific yields~~,~~;

(D) T~~t~~ransmissivity or hydraulic conductivity ~~and the~~;

(E) D~~d~~irection(s) of preferred flow under hydraulic stress in the saturated zones of the receiving strata and/or aquifer which may be affected by the mining process;~~.~~

(F) ~~The extent of~~ H~~h~~ydraulic connection between the ~~receiving~~ strata to be mined and overlying and underlying aquifers~~,~~;

(G) ~~and the~~ H~~h~~ydraulic characteristics of any influencing boundaries in or near the ~~proposed well field area(s) shall be determined and described.~~ in situ mining area; and

(H) Information required under Section 11 of this Chapter.

(v) ~~Section 3(b)(v)~~ Discussion of groundwater sampling, to include a tabulation of ~~Tabulated~~ water quality analyses for samples collected from all groundwater~~s~~ which may be affected by proposed ~~operation~~ mining. Sampling to characterize the ~~premining~~pre-mining groundwater quality and its variability shall be conducted in accordance with established Department guidelines. All baseline groundwater quantity and quality information must be provided in an electronic format prescribed by the Administrator.

Section 5. **~~Research and Development License~~ Application Content Requirements - Mine (Operations) Plan.**

(a) ~~Section 3(c)~~ The permit application shall include a ~~A~~ mine plan containing all information required by W.S. § 35-11-406(b)~~(viii), (xiii), (xiv), and (xvi)~~ (i) through (ix) and (xi) through (xviii), and consistent with the applicable in situ technology~~:~~.

(b) The mine plan shall include applicable parts of Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 5(a).

(c) A description of operations specific to in situ mining, to include, but is not limited to the following:

(i) ~~Section 3(c)(i)~~ A description of the proposed method of operation, including the following: ~~injection pressures, injection rate and type of recovery fluid to be used.~~

(A) Injection and recovery rate, with the average and maximum daily rate and the volume of fluid and/or gas to be injected;

(B) Injection and recovery pressures, with average and maximum injection pressures;

(C) Proposed stimulation program;

(D) Proposed injection and recovery procedure;

(E) Expected changes in pressure and direction of movement of injection fluid;

(F) Underground gasifier design, operation and maintenance; and

(G) ~~Section 3(c)(ii)~~ A description of chemical or physical reactions that may occur during mining as a result of injection or recovery fluid injection.

(ii) The following information concerning the production zone shall be determined or calculated and submitted for new Class III wells or projects:

(A) Where the production zone is in a receiving strata which is naturally water bearing:

(I) Fluid pressure;

(II) Fracture pressure; and

(III) Physical and chemical characteristics of the receiving strata fluids.

(B) Where the receiving strata is not a water-bearing formation, the fracture pressure in the production zone.

(iii) ~~Section 3(c)(iv)~~ The procedure(s) to insure that the installation of recovery, injection, and monitor wells will not result in hydraulic communication between the production zone and overlying stratigraphic horizons.

(iv) ~~Section 3(c)(iii)~~ The procedures utilized to verify that the injection and recovery wells are in communication with monitor wells completed in the receiving strata and employed for the purpose of detecting excursions.

(v) ~~Section 3(c)(vi)~~ Descriptions of:

(A) Completion details for all monitor wells; and

(B) ~~a~~ D~~d~~etailed description of the typical proposed well completion for injection and recovery wells, as required by Section 8 of this Chapter.

(vi) Details of a monitoring program and reporting schedule as required by Sections 15 and 16 of this Chapter, respectively.

(vii) ~~Section 3(c)(v)~~ A schedule and procedures to check for mechanical integrity of Class III injection wells ~~prior to injection and at a minimum of every five years of use~~ as required by Section 9 of this Chapter.

(viii) A corrective action plan, for any wells which are improperly sealed, completed, or abandoned, consisting of such steps or modifications as are necessary to prevent movement of fluid into unauthorized zones as required by Section 19 of this Chapter.

(ix) ~~Section 3(c)(ix)~~ The composition of all known and anticipated wastes and procedures for their disposal, including disposal of any waste water generated during hydraulic fracturing.

(x) ~~Section 3(c)(xi)~~ Details of a program to monitor the quantity and quality of waters that may be affected by the operation from premining through release of bond, including a description of procedures and time schedules used to confirm excursions.

(xi) ~~Section 3(c)(xii)~~ A description of measures employed to prevent an excursion, and contingency plans to be implemented in the event of an excursion.

(xii) ~~Section 3(c)(xiii)~~ An assessment of impacts that may reasonably be expected as a result of the mining operation to water resources and water rights inside the permit area and on adjacent lands, and the steps that will be taken to mitigate these impacts.

(xiii) ~~Section 3(c)(xvi)~~ A subsidence analysis, using established geotechnical principles, which estimates based upon the proposed mining operation the effect of subsidence upon the land surface and overlying groundwater aquifers. Subsidence shall be planned and

controlled to the extent that the values and uses of the surface land resources and the groundwater aquifers will not be degraded.

(xiv) A maintenance plan to ensure:

(A) Wells are sufficiently covered to protect against entrance of undesirable material into the wells;

(B) The wells are marked and can clearly be seen;

(C) The area surrounding each well is kept clear of brush or debris;

(D) Monitoring equipment is appropriately serviced and maintained so the monitoring requirements of Section 16 of this Chapter can be met; and

(E) Spill response and reporting plan.

Section 6. **~~Prohibitions.~~** ~~Permittees and licensees shall not inject recovery fluid into any zone or interval other than that described in the approved permit or license.~~ **Application Content Requirements - Reclamation Plan.**

(a) ~~Section 3(d)~~ The permit application shall include a ~~A~~ reclamation plan containing all information required by W. S. § 35-11-406(b)(ii), (iv), (xv), (xix), and consistent with the applicable in situ technology.~~:~~

(b) The reclamation plan shall include applicable parts of Land Quality Division – Coal, Rules and Regulations, Chapter 2, Section 6(a) and (b) and Chapter 4, Section 2.

(c) A description of operations specific to in situ mining, to include, but is not limited to the following:

(i) Discussion and illustration of the proposed groundwater restoration schedule including:

(A) A list of the proposed wellfields;

(B) A map(s) which shows the proposed sequence for restoration of the wellfields;

(C) A proposed time schedule for each wellfield;

(D) The capacity of the water/waste water treatment systems and correlation capacity with the mining and restoration schedules.

(ii) ~~Section 3(d)(i)~~ The information necessary to demonstrate that the operation will return all affected groundwater, including affected groundwater within the

production zone, receiving strata, and any other areas, to a condition such that its quality of use is equal to or better than, and consistent with, the uses for which the water was suitable prior to the operation by employing the best practicable technology. Such a demonstration shall be made by showing that through the employment of the best practicable technology, as defined in W.S. § 35-11-103(f)(i) and in accordance with the following provisions:

(A) In deciding whether a demonstration has been made by the operator that Best Practicable Technology has been applied, the Administrator shall, at a minimum, take the following factors into consideration:

(I) The pre-mining baseline water quality;

(II) The character and decree of injury or interference with the health and well-being of the people, animals, wildlife, aquatic life and plant life affected;

(III) The social and economic value of the source of pollution;

(IV) The social and economic value of the impacted aquifer;

(V) The priority of the location in the area involved;

(VI) The technical practicability and economic reasonableness of reducing or eliminating the source of pollution;

(VII) The effect upon the environment; and

(VIII) The potential impacts to other waters of the state.

(B) The evaluation of restoration of the groundwater within the production zone shall be based on the target restoration values.

(C) The evaluation of groundwater restoration success is conducted on a parameter by parameter basis; and

(D) Regardless of the restored groundwater quality in the production zone, the adjacent aquifers and other waters within the same aquifer must be fully protected to their class of use and, outside the aquifer exemption boundary, to applicable MCLs from the U.S. Environmental Protection Agency Rules (40 CFR 141). If the restored groundwater in the production zone poses a threat to groundwater outside the production zone, then flow and/or fate and transport models shall be used to assist in determining what action, including monitoring sufficient to verify the model, needs to be taken. A monitoring program sufficient to verify the model may be required.

(E) If the operator demonstrates the application of Best Practicable Technology to the satisfaction of the Administrator, but is unable to achieve the pre-mining class of use, then the operator can:

(I) Request that the Director recommend the Environmental Quality Council modify the water quality criteria used for groundwater restoration, in accordance with W.S. § 35-11-429 (a)(iii);

(II) Provided the operator can demonstrate the requirements of Section 6 (a) (ii) (D) will be met.

(F) A minimum of 1 year of quarterly monitoring data for a full suite of parameters, except those shown to be unaffected by the mining and restoration process, must be provided to demonstrate groundwater stability during the evaluation of restoration.

(iii) A plan for well repair, plugins, and conversion as required by Section 10 of this Chapter.

(iv) ~~Section 3(d)(v)~~ A proposed time schedule for achieving reclamation, including commitments that reclamation of mining-related surface disturbances in any mining area shall be completed within two years following approval of groundwater restoration in that area and that reclamation of all mining-related surface disturbances shall be completed within two years following approval of final groundwater restoration within the permit area.

(v) ~~Section 3(d)(iii)~~ A contour map showing the approximate post-reclamation surface contours for affected lands and the immediate surrounding areas if the operation will substantially alter the premining contours.

(vi) ~~Section 3(d)(vii)~~ Procedures for reestablishing any surface drainage that may be disrupted by the mining operation.

(vii) ~~Section 3(d)(iv)~~ Procedures for the reclamation of any temporary diversion ditches or impoundments.

(viii) ~~Section 3(d)(viii)~~ Procedures for permanently disposing of any toxic or acid-forming materials.

(ix) ~~Section 3(d)(ix)~~ Procedures for removing and disposing of ~~mine facilities~~ structures used in conjunction with the mining operation.

(x) ~~Section 3(d)(x)~~ Procedures for mitigating or controlling the effects of subsidence.

(xi) ~~Section 3(d)(xi)~~ Procedures for surface preparation, depth of topsoil replacement, erosion control and water conservation practices.

(xii) ~~Section 3(d)(xii)~~ Procedures for revegetation ~~so as~~ to return the affected land to the proposed post-mining land use and procedures for evaluation of revegetation success in accordance with Chapter 4, Section 2(d).

(xiii) ~~Section 3(d)(vi)~~ The estimated costs ~~of~~ for reclamation as computed in accordance with established engineering principles, including, but not limited to:

(A) Cost of removing and disposing of structures ~~mine facilities;~~.

(B) Cost of topsoil restoration ~~topsoiling~~ and reseeding all affected lands;~~.~~

(C) Cost of facilities, materials, and chemicals used for groundwater restoration;~~.~~

(D) Cost of capping, plugging, and sealing of all wells;~~.~~ and

(E) Costs for personnel working on reclamation-related activities.

Section 7. ~~Section 5.~~ **Research and Development License Application.**

An application for a Research and Development ~~Testing~~ License shall contain all information required by W.S. § 35-11-431 and Sections 7 through 17 of this Chapter; and shall:

(a) Demonstrate that the operation is designed to:

(i) Evaluate mineability or workability of a mineral deposit using in situ mining techniques.

(ii) Affect the land surface, surface waters and groundwater of the State to the minimum extent necessary.

(iii) Provide premining, operational and postmining data, information and experience that will be used for developing reclamation techniques for in situ mining.

(b) Contain a general description of the land, geology and groundwater hydrology for the proposed license area including:

(i) The land use, vegetation, and topsoil characteristics of the affected lands.

(ii) The location and name of surface waters and adjudicated water rights inside and within one-half mile of the license areas.

(iii) The locations and present owners of all wells inside and within one-half mile of the license area to include information concerning plugging and well completion and producing interval(s) to the extent such information is available in the public record or by a reasonable inspection of the property.

(iv) Groundwater quality data and potentiometric surface elevations for aquifers that may be affected by the proposed operation.

Section 8. ~~**Confidential Records**~~ **Well Construction Requirements.**

(a) Methods for well construction shall:

(i) Be approved by the Administrator and included in the permit or Research and Development License application (per Section 5(c)(v) of this Chapter);

(ii) Constitute a requirement of the permit;

(iii) Construction requirements listed in Sections 8(a) through 8(f) of this Chapter are applicable to all wells installed for activities related to in situ mining. Additional requirements for Class III injection wells are included in Section 8(g). Additional requirements for monitoring wells are included in Section 8(h).

(iv) The Administrator may grant a deviation from the requirements, except those in Section 8(g), provided the operator can supply documentation of reliability, mechanical integrity, design, and construction to protect groundwaters of the State in accordance with the water quality standards contained in Chapter 8, Wyoming Water Quality Rules and Regulations.

(b) In selecting well locations, protecting wells, and maintaining well covers, the following requirements apply:

(i) The top of the casing shall end above grade. Where possibly the top of the casing shall end above any known high-water conditions of flooding from runoff or ponded water, and the immediate area around the collar of the well shall slope away from the well to direct surface runoff away from the well. Installation of wells in the channels and flood plains of perennial drainages is prohibited. If a wells must be located in an ephemeral or intermittent drainage:

(A) The well shall not be located in the streambed (i.e. the channel) of the drainage;

(B) During well construction and use, steps shall be taken to minimize the potential for damage to the channel, such as from erosion and sedimentation, and to protect the well from damage due to erosion and to prevent surface water runoff from entering the well;

(ii) The well opening shall be closed with a cover to prevent the introduction of undesirable material into the well.

(c) Annular seals shall be installed to protect the casing against corrosion, assure structural integrity of the casing, stabilize the upper formations; protect against contamination or pollution of the well from the surface; and prevent migration of groundwater from one aquifer or water-bearing strata to another.

(i) The drill hole shall be of sufficient diameter for adequate sealing and, at any given depth, at least three inches greater in nominal diameter than the diameter of the outer casing at that depth;

(ii) Before placing the annular seal, all loose drill cuttings, rock chips, or other obstructions shall be removed from the annular space by circulating the borehole with water or drilling mud slurry;

(iii) The annular sealing material shall be placed from the bottom to the top of the well casing. The displacement fluid used to force the final sealing material through the casing shall remain shut-in, to prevent back flow, until the sealing material is set. If settling occurs during setting of the sealing material, additional material must be placed into the annular space, to bring the level of the sealing material to the groundwater surface. If, during cementing, the cement does not return to the surface and settling during curing of the cement is more than forty feet, then a tremie pipe must be used to complete the cement to the surface to ensure that bridging does not occur.

(iv) Annular seals shall meet the standards of Land Quality Division, Rules and Regulations – Coal, Chapter 14.

(d) The casing of all wells shall be sufficient strength and diameter to prevent casing collapse during installation, convey liquid or gas at specified injection/recovery rate, pressure and temperature; and allow for sampling. Casing materials must be compatible with injection/recovery rates, pressure and temperature and must meet the relevant standards of ASTM International.

(e) Casing shall be placed with sufficient care to avoid damage to casing sections and joints. All joints in the casing above the perforation or screens shall be water tight. The uppermost perforations or top of the screen shall be below the bottom of the annular seal. Casing shall be equipped with centralizers placed at a maximum spacing of one per forty feet to ensure even thickness of annular seal and gravel pack.

(i) Casing shall be joined in a manner that is compatible with injection fluids, formation fluids, recovery fluids, process by-products, and injection/recovery fluid pressures.

(ii) Documentation of compatibility with paragraph (i) above will be provided prior to well installation.

(iii) Steel casing may be joined by either threading or coupling.

(iv) PVC casing may be glued or mechanically joined (no metal screws), depending on the type of material and its fabrication. Compatibility between injection fluids, formations fluids, process by-products, recovery fluids, and the glue shall be demonstrated.

(f) Well development shall be done by methods which will not cause damage to the well or cause adverse subsurface conditions that may destroy barriers to the vertical movement of water between water-bearing strata.

(g) For Class III injection wells, the following construction requirements are in addition to the requirements listed in (a) through (f) of this Section:

(i) Appropriate logs and other tests shall be conducted during the drilling and construction of new Class III wells. A descriptive report prepared by a knowledgeable log analyst interpreting the results of such logs and tests shall be compiled and maintained by the operator and made available to the Division for inspection. The logs and tests appropriate to each type of Class III well shall be determined based on the intended function, depth, construction, and other characteristics of the well, availability of similar data in the area of the drilling site and the need for progresses. Deviation checks shall be conducted on all holes where pilot holes and reaming are used, unless the hole will be cased and sealed by circulating the sealing material to the surface. Where deviation checks are necessary, they shall be conducted at sufficiently frequent intervals to assure that vertical avenues for fluid migration are not created during drilling.

(ii) All Class III wells shall be constructed to prevent the migration of fluids to unauthorized zones. The casing and annular sealing material used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and annular sealing requirements, the following factors shall be considered:

(A) Depth to production zone;

(B) Injection pressure, external pressure, internal pressure, axial loading, or other factors as determined by the Administrator;

(C) Injection and recovery fluid temperature and chemical characteristics;

(D) Drill hole diameter;

(E) Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification and construction material;

(F) Corrosiveness of injected fluids, formation fluids, process by-products, and recovery fluids;

(G) Lithology of the receiving strata and confining zones; and

(H) Type and grade of sealing material.

(h) The following monitoring well construction requirements are in addition to the requirements listed in (a) through (f) of this Section.

(i) Where injection is into a receiving strata which contains water with less than 10,000 milligrams per liter (mg/L) Total Dissolved Solids (TDS), monitoring wells shall be completed into the production zone and any unauthorized zone or water-bearing strata which could be adversely affected by the mining operation. These wells shall be located in such a fashion as to detect any excursion of injection fluids, formation fluids, process by-products, or recovery fluids. If the operation may be affected by subsidence or catastrophic collapse, the monitoring wells shall be located so that they will not be physically affected.

(ii) Where injection is into a receiving strata which contains water with greater than 10,000 mg/L TDS, no monitoring wells are necessary in the production zone.

(iii) Where the injection wells penetrate an USW in an area subject to subsidence or catastrophic collapse, an adequate number of monitoring wells shall be completed into the USW to detect any movement of injection fluids, formation fluids, process by-products, or recovery fluids into the USW. The monitoring wells shall be located outside the physical influence of the subsidence or catastrophic collapse.

(iv) In determining the number, location, and construction of the monitoring wells and frequency of monitoring, the following criteria shall be considered:

(A) The uses for which the groundwater in the receiving strata is suitable under premining conditions, in any aquifer affected or potentially affected by the is situ mining operation;

(B) The proximity of the injection operation to points of withdrawal;

(C) The local geology and hydrology;

(D) The operating pressures and whether a negative pressure gradient is being maintained;

(E) The chemical nature and volume of the injection fluids, formation fluids, process by-products, and recovery fluids; and

(F) The injection and recovery well density.

(i) No Class III well construction may commence until a permit or Research and Development License has been issued which includes well construction information in accordance with the requirements of Section 8 of this Chapter. Construction of wells needed to obtain the information required in Section 4 of this Chapter may be:

(i) Allowed with approval of the Administrator; but

(ii) May not be used for injection until after permit issuance and only if those wells were constructed in accordance with the requirements of Section 8(g).

(j) The operator may not commence injection in a new injection well until construction is complete and the operator has demonstrated mechanical integrity. The operator shall submit notice of completion of construction and demonstrated mechanical integrity in the quarterly monitoring reports. Except for all new wells authorized by an area permit or well field data package under Section 2(e) of this chapter, the operator may not commence injection in a new injection well until: ~~construction is complete and the operator has demonstrated mechanical integrity. The operator shall submit notice of completion of construction and demonstrated mechanical integrity in the quarterly monitoring reports.~~

(i) The operator has submitted notice of completion of construction to the Administrator: and

(ii) With respect to inspection and review:

(A) The Administrator has inspected or otherwise reviewed the new injection well and finds the well is in compliance with the permit or Research and Development Testing License; or

(B) The operator has not received notice from the Administrator of the intent to inspect or otherwise review the new injection wells within 13 days of the date of the notice in paragraph (b)(i) of this subjection, in which case prior inspection or review is waived and the operator may commence injection. If notice is given, the Administrator shall include in the notice a reasonable time period in which he or she shall inspect the well.

Section 9. **Mechanical Integrity Testing (MIT) of Class III Injection, Production, and Monitor Wells**

(a) A schedule and methods for Mechanical Integrity Testing shall be approved by the Administrator and included in the permit or Research and Development Testing License application (per Section 5(a)(v) of this Chapter) and shall constitute requirements of the permit. The schedule and methods shall meet the following requirements:

(i) The operator of a Class III injection or production well shall establish mechanical integrity as defined in Section 1 of this Chapter for each well prior to commencing injection.

(ii) For demonstrating mechanical integrity as defined in Section 1 of this Chapter:

(A) One of the following methods must be used to evaluate the absence of significant leaks in the casing, tubing, or packer:

(I) Following an initial pressure test, monitoring of the tubing-casing annulus pressure with sufficient frequency to be representative, as determined by the

Administrator, while maintaining an annulus pressure different from atmospheric pressure measured at the surface; or

(II) Pressure test with liquid or gas.

(B) One of the following methods must be used to determine the absence or significant fluid movement into any unauthorized zone or water-bearing strata through vertical channels adjacent to the injection bore:

(I) The results of a temperature or noise log (e.g. cement bond log); or

(II) Where the nature of the casing precludes the use of the logging technique prescribed above, sealing records demonstrating the presence of adequate sealing material to prevent such migration shall be provided; or

(III) Where the Administrator elects to rely on sealing records to demonstrate the absence of significant fluid movement, the monitoring program prescribed in Section 14 of this Chapter shall be designed to verify the absence of significant fluid movement.

(C) The Administrator may allow the operator to use a test to demonstrate mechanical integrity other than those listed in subsection (A) above, if the alternate testing method is approved by the EPA. To obtain approval, the Administrator with concurrence of the Director, shall submit a written request to the EPA, which shall set forth the proposed test and all technical data supporting its use.

(iii) Maintenance of the mechanical integrity of each Class III well, which has not been plugged or converted as required by Section 10 of this Chapter, shall be demonstrated at least once every five years or on a schedule determined by the Administrator.

(iv) Before resuming injection into any Class III well that has been damaged by surface or subsurface activity or that has undergone an activity that may jeopardize the mechanical integrity of the well, such as the use of downhole cutting and underreaming tools, the operator must demonstrate the mechanical integrity of that well.

(v) If the Administrator determines that a Class III well lacks mechanical integrity, he or she shall give written notice of this determination to the operator of the well. Unless the Administrator requires immediate cessation, the operator shall cease injection into the well within 48 hours of receipt of the Administrator's determination. The Administrator may allow plugging of the well or require the operator to perform such additional construction, operation, monitoring, reporting, and corrective action as is necessary to prevent the movement of fluid into unauthorized zones or onto the surface caused by the lack of mechanical integrity. The operator may resume injection upon written notification from the Administrator that the operator has demonstrated mechanical integrity.

(vi) Results of MIT testing shall be reported quarterly in an electronic format as prescribed by the Administrator in accordance with the requirements in Section 15 of this Chapter.

Section 10. **Requirements of Plugging of Drill Holes and Repair, Conversion, and Plugging of Wells.**

(a) A plan for drill holes and well repair, plugging and conversion shall be approved by the Administrator and included in the permit or Research and Development License application, as required by Section 6(v) of this Chapter and shall constitute a requirement of the permit.

(b) All drill holes and monitor wells shall be plugged in accordance with Land Quality Division, Rules and Regulations - Coal, Chapter 14 and W.S. § 35-11-404.

(c) If a well lacks mechanical integrity, repair or plugging of the well is required to prevent the movement of fluid into unauthorized zones or onto the surface caused by the lack of mechanical integrity. Repair or plugging of the well must be completed within 120 days of the testing which indicates the well lacks mechanical integrity. If the well is repaired rather than plugged, retesting of the well, in accordance with the requirements of Section 9~~(a)(ii)~~ of this Chapter must be completed within 120 days after the repair is completed. The operator may resume injection upon written notification from the Administrator that the operator has demonstrated mechanical integrity.

(d) The operator shall notify the Administrator, as required by the permit or Research and Development Testing License, before plugging a well or wells within a permit area, or converting a well to uses other than those defined in Section 1(h) of this Chapter.

(e) All abandoned wells shall be plugged or converted in accordance with the Plugging/Conversion Plan in the permit or Research and Development Testing License, in order to assure that groundwater is protected and preserved for future use and to eliminate any potential physical hazard. A well is considered "abandoned" when it has not been used for a period of two years, unless the operator submits to the Administrator and receives approval for a non-significant revision demonstrating their intention to use the well again and the actions and procedures they will take to ensure that mechanical integrity of the well are maintained and the well will not endanger any unauthorized zone or water-bearing strata in accordance with the requirements of this Chapter.

(f) A well shall be plugged to meet the requirements below, using an approved sealant material as outlined in Land Quality Division Rules and Regulations - Coal, Chapter 14, to assure that plugging of the well will not allow the movement of fluids into or between unauthorized zones or water-bearing strata:

(i) The well shall be plugged using a method which prevents fluid communication and adverse changes in water quality or quantity. Sealant materials shall be emplaced in a manner that provides a water tight seal utilizing one of the approved methods

detailed in Land Quality Division Rules and Regulations - Coal, Chapter 14, Section 2(e) through (g) and shall meet the following requirements:

(A) If specific sections of the casing are to be plugged with cement:

(I) The type and number of plugs to be used;

(II) The placement of each plug including the elevation of the top and bottom;

(III) The method of placement of the plugs, in accordance of Section ~~8(f)(i)(B)~~10(f);

(IV) That the well to be plugged shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable methods prescribed by the Administrator prior to the placement of the cement plug(s); and

(V) That the placement of cement plugs shall be accomplished by one of the following:

(1.) The Balance method;

(2.) The Dump Bailer method;

(3.) The Two-Plug method; or

(4.) An alternative method approved by the Administrator, which:

a. Includes placement of plugging materials in the interval or intervals to be sealed by methods that prevent free fall, dilution and/or separation of aggregates from sealing methods; and

b. Provides a comparable level of reliable protection to the methods identified in Section ~~8(f)(iii)(A) through (C)~~10(f)(i).

(B) When the underground pressure head producing flow (i.e. gassy or artesian) is such that a counter-pressure must be applied to force a sealing material into the annular space, this counter-pressure shall be maintained for the length of time required for the plugging material to set or fully hydrate.

(C) The top of the plugging mixture of any plugged and abandoned well shall be backfilled to the surface with dry nonslurry materials or capped with a concrete cap set at least 2 below the ground surface and then backfilled to the surface with native earthen materials to ensure the safety of people, livestock, wildlife, and machinery in the area.

(g) In the case of an in situ operation which underlies or is in an aquifer which has been exempted under Section 11 of this Chapter, the Plugging/Conversion Plan in the permit or Research and Development Testing License shall also demonstrate adequate protection of USWs. The Administrator shall prescribe aquifer cleanup and monitoring where he deems it necessary and feasible to assure adequate protection of USWs.

(h) To ensure the locations of the abandoned wells are adequately identified:

(i) The location of each well shall be recorded as a deed notice with the appropriate county; and

(ii) The top of the plugging mixture in each abandoned well shall include a steel plate which clearly shows the well identification number, LQD permit number, and the date of plugging. All marking devices shall be installed a minimum depth of two feet below the land surface.

(i) Plugging and conversion activities shall be reported in accordance with the requirements in Section 15 of this Chapter.

Section 11. **Aquifer Classification and Exemption**

(a) Injections from Class III wells shall be restricted to those production zones that:

(i) Have been classified by the Wyoming Department of Environmental Quality as Class V aquifers under Chapter 8 of the Water Quality Division Rules and Regulations; and

(ii) Have concentrations of Total Dissolved Solids:

(A) Less than 10,000 milligrams per liter; meet the definition of an "Underground Source of Water" as defined in Section 1 of this Chapter; and have been approved as an exempted aquifer by the U.S. Environmental Protection Agency pursuant to Section 11(b) of this Chapter; or

(B) Greater than 10,000 milligrams per liter; and

(iii) Are located in a geologic and hydrologic setting in which movement of fluid, containing any contamination, into unauthorized zones can be prevented.

(b) An aquifer, or a portion thereof, which meets the criteria for an Underground Source of Water as defined in Section 1 of this Chapter maybe designated as an "exempted aquifer":

(i) If it meets the following criteria:

(A) It does not currently serve as a source of water for Class I, II, III, Special (A) or Class IV (A) uses as described in Chapter 8 of Water Quality Division Rules and Regulations, and

(B) It cannot now and will not in the future serve as a source of water because:

(I) It is a mineral, hydrocarbon, or geothermal energy producing, or can be demonstrated by a permit or Research and Development License applicant or operator to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible; or

(II) It is situated at a depth or location which makes recovery of water economically or technologically impractical; or

(III) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

(IV) It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or

(V) The total dissolved solids content of the groundwater is less than 10,000 mg/L and it is not reasonably expected to supply a public water supply as defined by W.S. § 35-11-103(c)(viii); and

(ii) As demonstrated by information in the permit or Research and Development Testing License application, including:

(A) A map and ~~general~~ description identifying and describing in geographic and/or geometric terms (such as vertical and lateral limits and gradient) all aquifers or parts thereof which the applicant proposes to exempt;

(B) Information to document that the exemption area is commercially producible as demonstrated by:

(I) The permit boundary;

(II) A description and calculations that support the proposed distance beyond the area required to mine and to restore the groundwater;

(III) General information on the mineralogy and geochemistry of the receiving strata; and

(IV) The type of mining technology used to extract the mineral; and

(C) Analysis of the amenability of the receiving strata to the proposed mining method; and a timetable of planned development of the receiving strata.

(c) A request for an aquifer exemption shall be presented by the WQD Administrator to the EPA as a state program revision pursuant to Code of Federal Regulations, 40 CFR § 145.32 and the Working Agreement between Water Quality Division (WQD) and Land Quality Division (LQD), Section III (C), UIC Wells.

Section 12. **Permit and Research and Development License Requirements**

(a) The following requirements shall apply to permits and Research and Development Licenses. Each requirement shall be incorporated into the permit or Research and Development License either expressly or by reference. If incorporated by reference, a specific citation to these regulations must be given in the permit or Research and Development Testing License.

(i) The operator has a duty to comply with all terms, conditions, and requirements of the approved permit or Research and Development License.

(A) Any permit or Research and Development License noncompliance is grounds for enforcement action and any Research and Development License noncompliance is grounds for denial of a Research and Development License renewal application.

(B) The filing of a request by the operator for a permit or Research and Development License revision per Chapter 13 or Section 14 of this Chapter does not waive any permit or Research and Development Testing License requirement.

(ii) It shall not be a defense for an operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the requirements of this permit or Research and Development License.

(iii) The operator has a duty to take all reasonable steps to minimize, mitigate, or correct any adverse impact on the environment resulting from noncompliance with this permit or Research and Development License.

(iv) The operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the operator to achieve compliance with the terms and conditions of the permit or Research and Development License. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the terms and conditions of the permit or Research and Development License.

(v) The permit or Research and Development License does not convey any property rights of any sort or any exclusive privilege.

(vi) The operator has a duty to provide the Administrator, within a time specified, any information which the Administrator may request to determine whether cause exists for revising or revoking the permit or Research and Development License. The operator shall also furnish to the Administrator, upon request, copies or records to be kept as required by the permit or Research and Development License.

(vii) In compliance with all the provisions of Chapter 13 and Section 14 of this Chapter:

(A) The operator shall give notice to the Administrator as soon as possible of any planned physical alterations or additions to the permitted or licensed facility and;

(B) When the operator becomes aware of failure to submit any relevant facts in a permit or Research and Development License application, or submitted incorrect information in a permit or Research and Development License application or in any report to the Administrator, the operator shall promptly submit such facts or information to the Administrator.

(viii) Prior to requesting bond reduction for abandonment of a Class III well or wells within a well field area or for conversion of a Class III well to another use, the operator shall provide documentation and receive approval from the Administrator regarding the plugging of the wells or wells within a well field area or conversion of the well.

(ix) The following shall also constitute requirements of the permit:

(A) Plans for corrective action, including injection pressure limitation, as specified in Section 19(a) of this Chapter;

(B) Monitoring requirements as specified in Section 16 of this Chapter;

(C) Schedule and methods to establish and maintain Mechanical Integrity as specified in Section 9 of this Chapter;

(D) A plan for well repairs, plugging, and conversion as specified in Section 10 of this Chapter;

(E) Subsidence plans, as specified Section 5 of this Chapter;

(F) Air quality monitoring and sampling

(G) By-product management; and

(H) Decommissioning plans.

(x) The approved permit or Research and Development License shall include maximum injection and recovery volumes and/or pressures necessary to assure that fractures are not initiated in the confining zone, injected ore recovered fluids do not migrate into any

unauthorized zone, and formation fluids are not displaced into any unauthorized zone. Operating requirements shall, at a minimum, specify that:

(A) Except during well stimulation, injection pressure at the well head shall be calculated to assure that the pressure in the production zone during injection does not initiate new fractures or propagate existing fractures.

(B) Operating temperatures and pressures which would trigger shut down procedures.

(C) Any other monitoring required by the Administrator which could be used to that fractures or other indications of failure are not initiated in the confining zone.

(xi) No operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection or mining-related activity in a manner that allows the movement of fluid containing any contaminant into zones or intervals other than those zones authorized in the approved permit or Research and Development License. The operator shall have the burden of showing that the requirements of this paragraph are met.

Section 13. **Duration of Permits and Research and Development Licenses.**

(a) Permit shall be issued:

(i) For a period coinciding with the estimated schedules for termination of all mining and reclamation activities in conformance with the approved mining plan (Section 5(a)(i)), as provided by W.S. § 35-11-405(a) and (b); and

(ii) With the option for revising the mining and reclamation schedules, as provided in W.S. § 35-11-411(a)(iii) and 429(a)(iv).

(b) The Administrator shall review the permit at least once every five years to determine whether it should:

(i) Remain unchanged;

(ii) Be revised in accordance with the requirements of Section 19 of this Chapter; or

(iii) Revoked in accordance with the requirements of Section 20 of this Chapter.

(c) As specified in W.S. § 35-11-431(a), a Research and Development License is issued for up to one year and may be renewed annually.

Section 14. **Revisions to Class III Well Portions of an In Situ Mine Permit or Research and Development License.**

(a) A permit, license to mine, or Research and Development License may be revised as a significant or non-significant revision as specified in Sections 14(b) and (c), respectively, to address one or more of the following considerations, subject to the limitations of Sections 14(d) and (e).

(i) A revision may be necessary to address:

(A) A permit requirement or condition, per Section 12 of this Chapter and W.S. § 35-11-429(a)(ii); or

(B) An excursion or other aspect of noncompliance per Section 18 of this Chapter;

(C) A corrective action or compliance schedule per Section 19 of this Chapter;

(D) A concern noted during the five-year review per Section 13 of this Chapter;

(E) An objection by the Administrator to a part of the Annual Report per W.S. § 35-11-411(b);

(F) A change that could jeopardize reclamation or protection of any waters of the state per W.S. § 35-11-429(a)(iv);

(ii) Any interested person, including the operator, may request a revision provided the request is in writing and contains facts or reasons supporting the request. If the Administrator decides that a request or a permit or license revision is not justified, he or she shall send the requester a brief written response giving the reason(s) for the decision. Denials of requests for revisions are not subject to public notice and comments;

(iii) If the Administrator requires the operator to revise any Class III Well portions of a permit or Research and Development License, he or she shall prepare a letter to the operator specifying the needed changes and additional information.

(b) The occurrence of any of the following with regards to the Class III Well portion of a permit or Research and Development License shall result in the operator being required to revise the permit or Research and Development License. These revisions shall be treated as significant revisions and require public notice as specified in Chapter 7 of these regulations and Section 21 of this Chapter. In addition, the fact sheet or State Decision Document, will be updated for these revisions:

(i) Any material or substantial alterations or additions to the facility which occurred after issuance of the permit or license, which justify the application of permit or licenses conditions or requirements that are different or absent in the existing permit or license, including:

(A) Any increase in the amount of land related to installation or operation of additional Class III wells, from that which was approved in the original in situ mining permit or Research and Development License. Such a revision shall include (if not already presented in the permit or Research and Development License), the information required in W.S. § 35-11-428 and the requirements of Sections 3 through 19 of this Chapter. However, if the increase in the amount of land is for purposes unrelated to installation or operation of Class III wells, then the provisions of Section 2(b)(ii) of Chapter 7 apply.

(ii) The Underground Injection Control standards or regulations on which the permit or license was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit or license was issued;

(iii) The Administrator determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage, or other events over which the permittee has little or no control and for which there is no reasonably available remedy.

(iv) Cause exists for revocation, as described in Section 23 of this Chapter, but the Administrator determines that revision is appropriate;

(v) A determination is made that the activity endangers human health or the environmental and can only be regulated to acceptable levels by a permit revision.

(c) A non-significant revision to any Class III Well portion of a permit or Research and Development license shall meet the requirements of Chapter 7 of these regulations, except that a non-significant revision, with operator consent, shall be for the following reasons only:

(i) To correct typographical errors;

(ii) To require more frequent monitoring or reporting by the operator;

(iii) To change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing schedule of compliance and does not interfere with attainment of the final compliance date requirement;

(iv) To allow for a change in ownership or operational control of a facility where the Administrator determines that no other change in the permit or Research and Development license is necessary provided that a written agreement is submitted in a format and on forms required by the Administrator containing a specific date for transfer of permit or Research and Development license responsibility, coverage, and liability between the current operator and new operator;

(v) To change quantities or types of fluids injected which are within the capacity of the facility as permitted or licensed and would not interfere with the operation of the

facility or its ability to meet conditions described in the permit or Research and Development license and would not change its classification;

(vi) To change well construction requirements approved by the Administrator pursuant to Section 8 of this Chapter, provided that any such alteration shall comply with the requirements of Section 8;

(vii) To amend a well plugging/conversion plan which has been updated under Section 10 of this Chapter; or

(viii) To submit a wellfield data package that conforms to the specifics of the permit document.

(d) Suitability of the Class III well location will not be considered at the time of permit revision unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

(e) Only those conditions or requirements to be revised shall be reopened when a revision is necessary. All other aspects of the existing permit shall remain in effect for the duration of the unrevised permit unless they are in violation of law that was enacted after the permit was approved.

(f) Reviews and decisions on a permit revision application shall be conducted according to the provisions in Chapter 7.

Section 15. **Reporting Requirements.**

(a) ~~Section 7~~ Aall chemical analysis submitted to the Administrator in accordance with a valid permit or Research and Development L~~l~~icense shall include:

(i) ~~Section 7(a)~~ A description of, or reference for, the procedures and methods used for sample collection, preservation, ~~analysis~~ and quality control.

(ii) ~~Section 7(b)~~ The name, address, and telephone number of the laboratory performing the analysis, ~~the job identification number and the date the analyses were performed~~ and the laboratory identification number; and

(iii) Signatures as required in Section 2(g) of this Chapter.

(b) Quarterly monitoring reports shall include, at a minimum:

(i) The results of monitoring required per Section 16 of this Chapter.

(ii) The results of all mechanical integrity testing conducted during that quarter, including the following information identified by Class III well, production well, or monitor well:

(A) Date of mechanical integrity testing;

(B) Identification of the method by which mechanical integrity was established;

(C) Verification of whether the mechanical integrity was or was not established in a well, including:

(I) Identification of a well which failed to have mechanical integrity established and consequently required repair; and

(II) A description of the method of plugging or repair.

(iii) The status of any corrective action on defective wells, required per Section 19 of this Chapter.

(iv) The results of well repair and plugging required per Section 10 of the Chapter, including:

(A) A Statement that:

(I) Wells were plugged in accordance with the approved permit or Research and Development Testing License; or

(II) Documentation that prior approval was obtained from the Administrator where plugging procedures differed from the procedures approved in the permit or Research and Development License.

(c) Annual reports shall include, at a minimum:

(i) ~~Section 4. Annual Report. In situ mining operators shall submit annual reports containing all~~ All information required by W.S. § 35-11-411; and

(ii) ~~Section 4(a)~~ A map(s) showing the location of all wells installed in conjunction with the mining activity and showing all areas where:

(A) ~~Section 4(a)(i)~~ Groundwater restoration has been achieved, is actively taking place and is expected to commence during the next year.

(B) ~~Section 4(a)(ii)~~ Mining is expected to commence during the next year.

(iii) ~~Section 4(b)~~ The total quantity of recovery fluid injected and the total quantity of recovery fluid extracted during the reporting period for each well field area including a description of how these quantities were determined.

(iv) ~~Section 4(c)~~ Monitoring program results pursuant to Section 16 ~~3(c)(xi)~~ of this Chapter, including a map and description of all excursions, their location and extent, that occurred during the reporting period. Completion details shall be included for all monitor wells installed during the previous year.

(v) ~~Section 4(d)~~ An updated potentiometric surface map(s) for all aquifer(s) that are or may be affected by the mining operation.

(vi) ~~Section 4(e)~~ Supporting data sufficient to demonstrate groundwater restoration in accordance with Section 6 ~~3(d)(ii)~~ of this Chapter.

(d) During excursions, results from excursion-related monitoring shall be reported in accordance with the requirements of Section 18 of this Chapter.

(e) Well abandonment reports shall be made to the Land Quality Division and the State Engineer's Office:

(i) Within sixty days after the abandonment of any well which has artesian or gassy flow at the surface. The report, set forth in affidavit form, should contain the location of the well to the depth of the well, estimated rate of flow, and the facts of the plugging technique.

(ii) Within twelve months after the abandonment of any well. The report should include the location of the well to the nearest 40-acre legal subdivision (quarter, quarter, Section), survey locations utilizing decimal Latitude and Longitude coordinates, the depth of the well, and the facts of the plugging technique.

Section 16. **Monitoring Requirements.**

(a) A detailed monitoring program shall be approved by the Administrator and included in the permit or Research and Development License application, as required by Section 4(a)(xv) of this Chapter, and shall constitute a requirement of the permit. The program shall describe the procedures for monitoring the quantity and quality of waters that may be affected by the operation before mining through reclamation and shall, at a minimum, specify:

(i) Requirements for:

(A) The proper use, maintenance, and installation of monitoring equipment or methods;

(B) The intervals and frequency of monitoring, sufficient to yield data which are representative of the monitored activity, including continuous monitoring when appropriate; and

(C) The test and methods used to generate monitoring data.

(ii) Monitoring of:

(A) The nature of the injected fluids;

(B) The nature of the recovery fluids;

(C) The injection fluid pressure and flow rate or volume, as appropriate;

(D) The produced fluid volumes and flow rate or volume, as appropriate;

(E) Class III injection wells;

(F) Production zone;

(G) Water levels and other parameters used to detect any movement of injected or recovered fluids, process by-products, or formation fluids;

(H) Pressure changes or other physical parameters if such monitoring provides for more rapid detection of excursions; and

(I) At the Administrator's discretion, based on site-specific conditions, surface air monitoring and/or soil/gas monitoring to detect movement of gases that could threaten human health, safety or the environment.

(iii) A description of procedures and schedules used to:

(A) Detect and confirm excursions; and

(B) Monitor excursions and excursion control efforts.

(iv) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and must be based on site-specific geologic factors, modeling, and operations.

Section 17. **Maintenance and Retention of Records.**

(a) ~~Section 7. Maintenance of Records and Chemical Analysis.~~ The operator shall maintain records at the mine site in accordance with W.S. § 35-11-430(b), ~~and all chemical analysis submitted to the Administrator in accordance with a valid permit or license shall include:~~ including, for any laboratory analyses that an operator is allowed to retain on site for inspection rather than submit to the Administrator:

(i) ~~Section 7(a)~~ A description of, or reference for, the procedures and methods used for sample collection, preservation, analysis and quality control;~~.~~

(ii) ~~Section 7(b)~~ The name, address, and telephone number of the laboratory performing the analyses, ~~the job identification number and the date the analyses were performed~~ and the laboratory identification number.

(b) The operator shall:

(i) Retain records of all monitoring information, including the following:

(A) Records of all data used to complete the permit and/or license applications and any supplemental information submitted under Sections 3, 4, 5, 6, 8 and 9 of this Chapter;

(B) Calibration and maintenance records and all original strip chart recording for continuous monitoring instruments, copies of all reports required by the permit or Research and Development Testing License, and records of all data used to complete the application for the permit or Research and Development Testing License;

(C) The nature and compensation of all injected and recovered fluids; and

(D) Information requested by the Administrator for inclusion in an Annual Report as required by W.S. § 35-11-411.

(ii) Retain all records listed in subsections 17(b)(i)(A) through (D) at the mine site until termination of the permit or Research and Development Testing License, unless otherwise authorized by the Administrator. However, the record retention schedule cannot be less than three years after the date of the sample, measurement, report, or application. The Administrator may require the operator to deliver the records to the Administrator at the conclusion of the retention period.

Section 18. **Noncompliance**

(a) The operator shall:

(i) Verbally report to the Administrator any noncompliance which may endanger public health or the environment within 24 hours of the time the operator becomes aware of the occurrence, including:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an USW or unauthorized zone; and

(B) Any noncompliance with a permit or Research and Development License or malfunction of the injection or recovery system which may cause fluid migration into, or between USWs or unauthorized zones.

(C) Any automatic shutdown due to operating parameters such as injection rate, injection pressure, production pressure, production temperature, production flow, or other parameters approved by the Administrator diverge beyond ranges and/or gradients specified in the permit.

(D) Any subsurface yielding or deformation, as determined by subsidence monitoring.

(ii) Provide a written report to the Administrator within five days of the operator becoming aware of the noncompliance occurrence. The Administrator of the Land Quality Division will forward one copy to the Administrator of the Water Quality Division. The written report shall describe:

(A) A noncompliance and its cause;

(B) The period of noncompliance, including exact dates and times;

(C) If the noncompliance has not been corrected, the anticipated time it is expected to continue; and

(D) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(iii) Report all instances of noncompliance, not reported under Sections 19(a)(i) and (ii~~i~~), at the time monitoring reports are submitted. The reports shall contain the information listed in Section 18(a)(i) and (ii) as applicable.

Section 19. **Excursions**

(a) "Confirmation" of an excursion event means that an excursion detected in a regularly scheduled sampling or monitoring event is subsequently detected in a second or third sampling event conducted in accordance with the following requirements:

(i) The second sampling event shall be conducted within 24 hours of the receipt of the results from the first sampling event in which the excursion was initially detected. If the results from the first and second sampling event both indicate an excursion has occurred, then the excursion will be considered confirmed for the purpose of meeting the reporting requirements of W.S. § 35-11-429(a).

(ii) If the results from the first and second sampling events provide conflicting information about whether or not an excursion has occurred, then a third sampling event must be conducted within 24 hours of receipt of the results from the second sampling event. However, if the results of the confirmatory sampling are not complete within 30 days of the initial sampling event which indicated an excursion might be present, then the excursion will be considered confirmed for the purpose of meeting the reporting requirements of W.S. § 35-11-429(a).

(b) The operator shall:

(i) Verbally report any confirmed excursion to the Administrator within 24 hours of confirmation of the excursion and;

(ii) Submit a written report to the Administrator within five days of the confirmation of the excursion detailing the procedures for mitigating or controlling the excursion. The Administrator of the Land Quality Division will forward one copy to the Administrator of the Water Quality Division.

(c) An excursion is controlled when it can be demonstrated through water quality and groundwater gradient, or if applicable, pressure measurements, that recovery fluid in unauthorized areas is declining.

(i) If an excursion is not controlled within 30 days following confirmation of the excursion, additional sampling specific to the in situ mining operation will be required.

(ii) If an excursion is not controlled within 60 days following confirmation of the excursion, the Administrator may, after consultation with the Director, terminate the mining operation and revoke the permit or Research and Development License or modify the mining operation and require modification of the permit or Research and Development License.

(iii) If the excursion is controlled, but the fluid which moved out of the production zone during the excursion has not been recovered within 60 days following confirmation of the excursion (i.e. the monitor well is still "on excursion"), the operator will submit, within 90 days following confirmation of the excursion, a plan and compliance schedule, acceptable to the Department, for bringing the well (or wells) off excursion. The plan and compliance schedule can be submitted as part of the monthly excursion report required in Section 18(e) of this Chapter. The compliance schedule shall meet the requirements of Section 19(b) of this Chapter.

(d) In addition to the excursion notifications and control plan required above, a monthly report on the status of the excursion shall be submitted to the Administrator beginning the first month the excursion is confirmed and continuing until that excursion is over. The monthly report shall be a requirement of the compliance schedule and shall include, at a minimum:

(i) Concentrations of UCL parameters and groundwater elevations in all monitoring wells on excursion and, as necessary, surrounding wells;

(ii) Such information deemed necessary by the Administrator to show that the excursion is being controlled and that the bond amount for groundwater restoration or other remediation activities remains sufficient;

(iii) Information on steps taken to control the excursion.

Section 20. **Corrective Action and Compliance Schedules**

(a) Corrective actions are:

(i) Needed when a well is improperly sealed, completed, or abandoned, in which case:

(A) Operators shall provide the well information, as required in Section 5(c)(i), (ii) and (iii) of this Chapter, and the corrective action plan as required in Section 5(c)(viii) of this Chapter. Where the Administrator's review of the plan indicates that the operator's plan is inadequate (based on the factors presented below), the Director shall require the operator to revise the plan, prescribe a plan for corrective action as a term and condition of the permit, or deny the application.

(B) In determining the adequacy of corrective action proposed by the operator and in determining the additional steps needed to prevent fluid movement into an unauthorized zone, the following criteria and factors shall be considered by the Administrator:

(I) Nature and volume of injected fluid;

(II) Nature and volume of recovery fluid;

(III) Nature and volume of native groundwater;

(IV) Compatibility of injected and recovery fluid and native groundwater;

(V) Potentially affected population;

(VI) Geology, including geomechanical properties of coal and overburden;

(VII) Hydrogeology;

(VIII) Proposed method of operation as required by Section 5 (c) (i) of this Chapter or history of the injection operation if the corrective action is needed in response to amending new wells into an existing operation;

(IX) Completion and plugging records;

(X) Plugging procedures in effect at the time the well was abandoned;

(XI) Hydraulic connections with unauthorized zones.

(ii) Needed if any water quality monitoring of an USW or unauthorized zone indicates the movement of any contaminant into an USW or unauthorized zone, except as specifically authorized in the approved permit or Research and Development License, in which case, the Administrator shall prescribe such additional requirements for construction, corrective action, operation, monitoring or reporting (including closure of the injection or recovery well and/or limitation of injection pressures) as are necessary to prevent such movement. These additional requirements shall be imposed by requiring the operator to revise the permit or Research and Development License, the permit or Research and Development License may be revoked, or appropriated enforcement actions may be taken if the permit or Research and Development License has been violated.

(iii) The status of corrective action on defective wells shall be reported in accordance with the requirements of Section 15 of this Chapter.

(b) Compliance Schedule. When appropriate, a permit or license may include, or be revised to include, a compliance schedule leading to compliance with the applicable statutes and regulations. The schedule shall be applicable whether the operator is continuing or ceasing regulated activities.

(i) Any compliance schedule shall require compliance as soon as possible, and in no case later than 3 years after the date the schedule is put into effect. In addition:

(A) The schedule shall set forth interim requirements, the dates for their achievement, and a projected date of compliance with the requirements;

(B) The time between interim dates shall not exceed 1 year; and

(C) The schedule shall specify dates for the submission of progress reports, no later than 30 days following interim date and the final date of compliance.

(c) Emergency and Remedial Response Plan. As part of the permit application, the operator must provide the Administrator with an emergency and remedial response plan that describes actions to be taken to address movement of the injection or recovery fluids, or formation fluids that may cause an endangerment to a USW or threaten human health, safety, or the environment during construction, operation, closure, and post-closure periods.

(i) The emergency and remedial response plan must be reviewed and updated, as necessary. Any changes in the well field, operational and/or maintenance activities may trigger a review. At a minimum, the plan shall be reviewed every five years.

(d) Emergency Response. If monitoring data, or other evidence obtained by the operator indicate that the recovery fluid; production pressure, temperature or flow; cavity growth; or operation of surface facilities endangers a USW or threatens human health, safety, or the environment, the operator must:

(i) Immediately initiate safety measures, as per the emergency response plan;

(ii) Take all steps reasonably necessary to identify and characterize the danger; and

(iii) As soon as practical, provide verbal notice to the Department of any excursion.

(iv) If required by the Department, provide written notice of the excursion to all surface owners, mineral claimants, mineral owners, lessees and other owners of the record of subsurface interests within 30 days.

(v) Implement the emergency and remedial response plan, as approved by the Administrator.

(e) The Administrator may allow the operator to resume injection prior to remediation if the operator demonstrates that the operation will not endanger USWs or otherwise threaten human health, safety, or the environment.

Section 21. **Public Notice, Public Hearing, Comment and Decision Requirements.**

(a) In addition to the requirements of W.S. § 35-11-406(g), (j), and (k) and Chapter 7, public notice for actions related to in situ permits or Research and Development Licenses, except permit or license revocation, shall be given by the following methods:

(i) All public notices issued under this Section shall contain the following:

(A) Name and address of the office processing the permit action for which notice is being given;

(B) Name and address of the operator and, if different, of the facility or activity regulated by the permit;

(C) A brief description of the business conducted at the facility or activity;

(D) Name, address, and telephone number of a person from whom interested persons may obtain further information;

(E) A brief description of the comment procedures, including a statement of procedures to request a hearing or, if a hearing has already been scheduled, the time and place of that hearting, and other procedures by which the public may participate in the final permit decision; and

(F) Any additional information considered necessary or proper.

(ii) The Administrator shall mail a copy of the notice to the following persons (any person otherwise entitled to receive notice under this paragraph may waive his or her rights to receive notice for any classes or categories of permits):

(A) Any other agency (including EPA when the draft permit is prepared by the State) which the Administrator knows has issued or is required to issue a permit for the same facility or activity under the following programs:

(I) Resource Conservation and Recovery Act (RCRA);

(II) Underground Injection Control (UIC);

(III) Prevention of Significant Deterioration (or other permit requirement under the Clean Air Act;

(IV) National Pollution Discharge Elimination System (including sludge management permits); and

(V) Section 404 of the Clean Water Act.

(B) Federal and State agencies with jurisdiction over fish, shellfish, wildlife resources, the Advisory Council on Historic Preservation, State Historic Preservation Officers, including any affected Indian Tribes, and the Wyoming Oil and Gas Conservation Commission.

(C) Persons on a mailing list developed by including:

(I) Those who request in writing to be on a list;

(II) Soliciting persons for "area lists" from participants in past permit proceedings in that area and;

(III) Persons notified of the opportunity to be put on the mailing list through periodic publication in the public press. The Administrator may update the mailing list from time to time by requesting written indication of continued interest from those listed. The Administrator may delete from the list the name of any person who fails to response to such a request.

(D) Any unit of local government having jurisdiction over the area where the facility is proposed to be located.

(E) Each State agency having any authority under State law with respect to the construction or operation of such a facility.

(iii) In addition to mailing a copy of the public notice, the Administrator shall mail or electronically transfer a copy of the fact sheet, permit application or draft permit to the following persons:

(A) The applicant;

(B) Any other agency (including EPA when the draft permit is prepared by the State) which the Administrator knows has issued or is required to issue a permit for the same facility or activity under the following programs:

(I) Resource Conservation and Recovery Act (RCRA);

(II) Underground Injection Control (UIC);

(III) Prevention of Significant Deterioration (or other permit requirement under the Clean Air Act;

(IV) National Pollution Discharge Elimination System (including sludge management permits); and

(V) Section 404 of the Clean Water Act.

(C) Federal and State agencies with jurisdiction over fish, shellfish, wildlife resources, the Advisory Council on Historic Preservation, State Historic Preservation Officers, including any affected Indian Tribes, and the Wyoming Oil and Gas Conservation Commission.

(iv) To supplement the required methods of public notice listed above, public notice can also be given by any other method reasonably affected by it, including press releases or any other forum or medium to elicit public participation.

(b) Objections may be filed in accordance with W.S. § 35-11-406(k), which objections shall list one or more reasons for denying the permit or Research and Development Testing License revision application as set out in W.S. § 35-11-406(m). If such written objections are filed, a public hearing shall be held in accordance with W.S. § 35-11-406(k) and the requirements of this Chapter. In addition to the hearing notice requirements described in W.S. § 35-11-406(k), the public notice of a hearing shall contained the following information:

(i) Reference to the date of the previous public notices relating to the permit;

(ii) Date, time and place of the hearing; and

(iii) A brief description of the nature and purpose to the hearing, including the applicable rules and procedures.

(c) A decision on the application of the nature and purpose of the hearing, including the applicable rules and procedures.

(i) Within 30 days after completion of the notice period, if no hearing is requested; or

(ii) If a hearing is requested:

(A) The Environmental Quality Council shall issue findings of fact and make a decision on the application within 60 days after the final hearing; and

(B) The Director will make a decision on the application within 15 days from receipt of any finds of fact and decision of the Council.

(C) Be sent to the applicant and objectors, along with a copy of the Director's decision, and be available to the public.

(iv) The Administrator will publish a summary of the decision in a newspaper of general circulation in the general area of the proposed operation.

(d) For permit or license revocation, all provisions of this Chapter shall apply, except that the Director shall cause notice of the revocation to be published.

Section 22. ~~Section 8.~~ **Confidential Records.**

(a) Information submitted to satisfy the requirements of this Chapter may be held confidential pursuant to W.S. § 35-11-1101.

Section 23. **Revocation.**

(a) A permit, license to mine, or Research and Development license may be revoked by the Administrator to address one or more of the following:

(i) Revocation may be necessary to address:

(A) An excursion or other aspect of noncompliance per Section 18 of this Chapter; or

(B) One of the items listed in Section 20(b).

(ii) Any interested person, including the operator, may request revocation provided the request is in writing and contains facts or reason supporting the request. If the Administrator decides that a request for revocation is not justified, he or she shall send the requester and operator a brief written response giving the reasons(s) for the decision. Denials of request for revocations are not subject to public notice and comment;

(iii) If the Administrator revokes any Class III Well portions of a permit or Research and Development license, he or she shall prepare a letter to the operator specifying the needed changes and additional information.

(b) The Directory or Administrator may revoke a permit, License to Mine, or Research and Development license:

(i) If an excursion cannot be controlled or mitigated per W.S. § 35-11-429(a);

(ii) For failure to comply with permit terms, conditions, or requirements per W.S. § 35-11-412(b) and (c);

(iii) For the operator's failure in the application or during the issuance process to disclose fully all relevant facts or for misrepresenting any relevant facts at any time, as provided in W.S. § 35-11-409(a); and

(iv) Per the provisions of W.S. § 35-11-109(a)(xiii) and 110(b);

(c) A revocation requires public notice as specified in Section 3 of Chapter 7 of these regulations and Section 21 of this Chapter.