

CONDENSED DETAILED INSTRUCTIONS  
for  
PREPARATION OF SURFACE WATER APPLICATIONS AND ACCOMPANYING MAPS  
for  
FACILITIES (Pollution control and others)  
for  
MINING AND OTHER INDUSTRIAL OPERATIONS

These instructions are based on the State Engineer's Manual of Regulations and Instructions and may only be used in conjunction with requirements stated herein.

ALL INFORMATION PRESENTED BY THE APPLICATION AND ACCOMPANYING MAP AND WHERE SHOWN IN MORE THAN ONE PLACE -- MUST BE ABSOLUTELY IDENTICAL, It cannot merely mean the same thing.

Many applications and accompanying maps of this category are prepared by personnel of the mining company or by others who are not thoroughly versed in water right matters and by virtue of reasonable economics, such personnel cannot be allowed the study time required to become proficient in this regard. In view of this fact, the attached outlines have been prepared for use of the technical personnel who will actually do the drafting and for those who will subsequently prepare the application. The State Engineer's Manual of Regulations and Instructions must be used in conjunction with these instructions and should be referred to frequently as suggested herein.

We suggest that after the necessary field work has been accomplished, the map be made and then the application be prepared. This will tend to eliminate differences in the presented information.

NOTE: ALL ITEMS CONTAINED IN THESE INSTRUCTIONS ARE REQUIREMENTS OF THIS OFFICE. If an item is not applicable, then it should not be shown on the map or stated in the application. Applications and maps which do not conform will probably be returned for correction. Therefore, in order to expedite processing the application to permit status, the finalized application and map should be checked in detail with these instructions before submitting to the Office of the State Engineer for filing for record.

The applicant (or company) or engineer filing the application should specify in the letter of transmittal to whom items should be returned for correction, either the company or an individual of the company or the filing engineer or the consulting engineering firm. Otherwise, such items will be directed to the certifying engineer at the address shown in the Wyoming Roster of Professional Engineers and Land Surveyors.

In order to save time, items of non-conformance may be indicated in "red" on a set of instructions rather than discussed in detail by our letter of review or merely referenced in our letter by the applicable identification of the item(s) in the instructions.

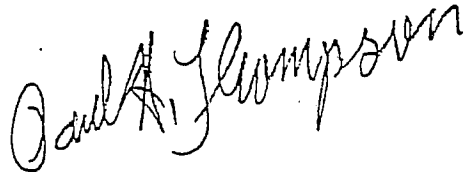
PLEASE BE ADVISED THAT IT IS NOT POSSIBLE FOR US TO REVIEW PROPOSALS IN ANY DETAIL DURING A CONFERENCE -- PICTORIAL INFORMATION MUST BE PRESENTED TO US AND ALL EXPLANATIONS MUST BE IN WRITING -- AND THEN OUR REVIEW, SUGGESTIONS AND REQUIREMENTS WILL BE SET FORTH IN A DETAILED LETTER -- THE CONTEXT OF SUCH LETTER OF REVIEW WILL PREVAIL.

FOR INSTRUCTIONS REGARDING REQUIREMENTS FOR APPLICATIONS AND ACCOMPANYING MAPS FOR FACILITIES TO BE DEVELOPED AS A RESULT OF RECLAMATION OF THE MINING SITE, PLEASE INQUIRE ON AN INDIVIDUAL BASIS.

ALL PETITIONS, APPLICATIONS AND ACCOMPANYING MAPS WHICH ARE SUBMITTED TO THIS OFFICE BECOME A PART OF THE PERMANENT RECORDS OF THE STATE OF WYOMING AND MUST BE SELF EXPLANATORY. THE MAPS MUST BE PREPARED IN SUCH A MANNER AS TO PRESENT A COMPLETE PICTURE WHICH IS READILY AND EASILY UNDERSTOOD -- THIS IS REQUIRED TO ACCOMMODATE REVIEW OF THESE ITEMS BY PEOPLE WHO MAY NOT BE WELL VERSED IN ENGINEERING TECHNICALITIES.

SHOULD THERE BE ANY QUESTIONS REGARDING THESE INSTRUCTIONS -- PLEASE CALL THIS OFFICE - (307)-777-7354 or ~~(307) 777-5317~~

Prepared by:  
Paul H. Thompson  
July 13, 1977



MAPS - GENERAL -- USE BLACK WATER PROOF INK --

1. Maps are required to accompany surface water applications. The map may accompany more than one application. The map may consist of multiple sheets providing all sheets of the map are the same size. The Title Block must be identical on all sheets, and must tabulate the name of each facility for which a surface water application is being submitted.
2. Select size of drawing - see Page 56 of Manual. We do request that the size be no larger than the "E" size specified in order to accommodate our microfilm and subsequent reproduction system.
3. All drawings must be scalable. Select a standard scale - see Page 56 of Manual. Suggested scale for most location maps is 1" = 2000'. Enlarged views should be presented as necessary to clarify any portion of the system. These views must also be to a standard scale. The scale must be stated. Check with State Engineer's Office for applicability of a vicinity location type map of smaller scales, such as 1/2" = 1 mile.
4. All information which is presented in more than one place on the drawing, all sheets, and/or cross-referenced to the application, MUST BE IDENTICAL, it cannot merely mean the same thing.
5. We generally suggest that the Location Map be prepared on Sheet 1 of the map and that details of facilities be shown on subsequent sheets.

LOCATION MAP

6. Before starting the drawing - obtain a copy of the G.L.O. Plat showing details of the most recent rectangular survey of Section, Township and Range. Such copies are available from the Bureau of Land Management - 26th and Warren Avenue, Cheyenne, Wyoming 82001.
7. Location maps must show full (complete) sections as applicable to the overall area of industrial operation. These sections must be subdivided according to the latest G.L.O. Survey and must be further subdivided into forties (16ths) and/or the equivalent lots of original survey, tracts or lots of a resurvey. All tracts or lots as well as Sections, Township and Range, must be clearly labeled on the map.

NOTE: A line drawing is preferred. General area contour lines are not required for the location map and are not normally desired. However, photographic reproductions of such contour lines may be utilized to expedite drafting, but, in this case, the contour lines should be screened to be presented in light background of the drawing. All information as required by this office must be presented in pre-dominant contrast.

In case several surface water applications are required (more than four), or in case future applications are anticipated, we suggest preparation of a master location map without Title Block or the certificate and then making reproducibles of this master and adding the necessary information required to accompany each individual application to the reproducible. This will allow expeditious filing and processing of applications for which construction of the proposed facility is of some urgency.

We realize the physical attributes of mining activity are subject to continual change. However, when applicable, reproducibles of this master should be used to show plan views of new activity which will require approval of the State Engineer, i.e., facilities for which permits are required and new or extensively changed re-routing of natural drainage. If a point in the mining activity is reached where reproducibles of such master map are no longer applicable and where approval of activity is required by the State Engineer, then a new map must be prepared. A request to cancel permits for facilities which no longer exist due to such mining activity must be submitted to this office. Any remaining existing facilities under permit must be shown and identified on this new location map.

We would like to recommend that you submit a preliminary print of the master location map for an initial review and then make necessary corrections before making any reproducibles.

8. The next step is to add the natural course of all natural drainages to the map in black ink with arrows showing the direction of flow. All streams upon which a reservoir will be located or from which water will be diverted, must be named. If the name is unknown, a check with this office (State Engineer) will clarify as to the official name of the stream or whether the stream must be assigned a name. (The official name of all streams in Wyoming are those as of record in this office and not necessarily the name shown on printed maps obtained from other sources). This information should be requested by letter accompanied by sketch, USGS quad, or other map showing streams in question.

9. After all of the foregoing has been completed, add a complete plan view of the OVERALL INDUSTRIAL OPERATION, including, but not limited to:

- a) Reservoirs or ponds, regardless of proposed use, including those created by intercept ditches.
- b) Area outline of Mill, facilities for treatment of water and/or any other buildings.
- c) Outline of pit area.
- d) PIT DE-WATERING SYSTEM: A ground water (well) permit is required for movable pump sumps. The initial proposed location of the de-watering system is that which must be shown. This permit will apply for any continuous mine pit and when the pump sump is moved from one subdivision to another as the pit progresses, this office must be notified of this fact by letter; you will be advised further in this regard. Mine pit perimeter de-watering wells will require individual permits. ALL GROUND WATER APPROPRIATIONS and means of conveyance must be shown and identified on this location map.
- e) Any drainage intercept ditches or stream re-routing must be shown and thoroughly identified. Cross-sections with applicable hydraulic properties (Manning's equation preferred) must be shown for these facilities, including culverts, pumping, or other conduit used in the by-pass system. This detailed information may be shown on subsequent sheets of the map. The design of any by-pass system must be based on the hydrology of the upstream drainage area. Each proposed installation will be individually evaluated. The capacities of such systems must provide for a safe and reliable operation. Protection of downstream appropriations and preclusion of excessive depletion of the drainage are of prime consideration.
- f) Complete conveyance system for all water or fluids containing water, with direction of flow and type of fluid indicated. Such as; original appropriations; pit de-watering system; pipeline from mill to tailings disposal reservoir; disposition of water from mine pit perimeter de-watering wells; surface exposed sewage disposal system; etc.
- g) Any seepage capture and return system.
- h) Show and identify all water right facilities, both surface and ground water located within the area of operation.

- i) IF ANY WATER is to be used for dust abatement, an outline of the area of use and roads must be shown. This use must be thoroughly defined in the application providing the original appropriation of water, either surface or ground water. Facility must be shown and identified on this map.
- j) The location of any existing reservoir or point of diversion of other water right facility within the affected area must be shown in reference and identified; and if the existing facility is not directly connected with the mining operation, then the disposition of such existing water rights (permits) must be resolved and thoroughly explained.

10. A North Arrow is required.

THIS LOCATION MAP MUST, IN A SEMI-SCHEMATIC MANNER, SHOW AND IDENTIFY EACH MAJOR COMPONENT OF THE OVERALL INDUSTRIAL OPERATION WHICH CONCERNS WATER OR FLUIDS CONTAINING WATER, THE MEANS OF CONVEYANCE THEREOF AND DISPOSITION OR USE THEREOF.

REFER TO SAMPLE LOCATION MAPS ON PAGES 61 THROUGH 69 OF THE MANUAL OF REGULATIONS AND INSTRUCTIONS FOR SIZE FORMAT, "E" SIZE PREFERRED, AND METHODS OF PRESENTING OTHER INFORMATION. NOTE: THESE MAPS SHOULD BE USED AS REFERENCE ONLY AND NOT AS A DIRECT GUIDE FOR YOUR COMPLETE MAP.

FACILITY DETAILS - Show on subsequent sheets of the map.  
ALL VIEWS MUST BE TO A SPECIFIED STANDARD SCALE.  
All ponds are reservoirs and must be so named.

RESERVOIRS:

11. The sample map on page 65 of the Manual shows the general method of presentation of views of details required for reservoirs.

NOTE: 1 - All pollution control reservoirs which are designed to satisfy federal requirements and requirements of the Wyoming State Department of Environmental Quality will generally be found acceptable to the State Engineer. HOWEVER, in case of any resulting interference with existing water rights; or if flow of the waters of the natural drainage will be considerably diminished; or if the reservoir will store contaminants which if released in the downstream drainage might cause loss of life or present dangerous health hazards; or for any other reason as may be determined by the State Engineer, additional requirements might be imposed.

NOTE: 2 - Any reservoir from which NO OUTFLOW is to be allowed because of the type of contaminates stored therein will normally require a drainage by-pass ditch and the capacity of this by-pass ditch combined with the capacity of the surcharge storage of the reservoir must be such as to provide reliable safety of operation, protection of downstream appropriations and preclusion of excessive depletion of the drainage. Each reservoir will be individually evaluated in this regard. PROBABLE MAXIMUM CRITERION WHICH MIGHT BE IMPOSED BY THE STATE ENGINEER ARE:

BY-PASS DITCHES: A capacity sufficient to accomodate back to back 24 hour 100 year storms. In this case, the second 100 year storm is considered and this might indicate a possible necessity of a ditch capacity of approximately 140% of the first 100 year storm.

SURCHARGE STORAGE: A capacity sufficient to accomodate inflow of back to back 100 year 24 hour storms as applicable to the drainage area between by-pass ditches and the dam including the surface area of the reservoir; plus possibly 75% of the inflow of a 24 hour 100 year storm applicable to the total drainage area to provide safety in case of failure of by-pass ditches during the last part of a major event such as back to back 100 year 24 hour storms.

PRELIMINARY PROPOSALS for our review are recommended.

- a) Plan view of reservoir with interior contour lines not exceeding five (5) feet intervals.

THERE MUST BE A CONTOUR LINE FOR EACH ELEVATION WHICH CAN OR WILL BE USED TO CONTROL THE LEVEL OF WATER OR STORAGE. Such as the maximum operating high water line, and the elevation of the high water line of the maximum surcharge (or storm) storage.

- b) A Maximum Cross-section of Dam must be shown with all applicable elevations stated. Height of dam must be shown and this is the distance from the downstream toe to the top of the dam.
- c) A complete Profile of Damsite must be shown. Top of Dam, applicable high water lines and other information must be stated.

- d) Reservoir Capacity Table must correlate with all elevations shown in plan view and should conform with the format shown.
- e) Plan view of reservoir must be entitled - see sample map, Page 65 of Manual.

NOTE: The Location Map shown on Page 65 is not applicable to sheets of your map showing details of the reservoir.

12. Any off channel reservoirs (ponds) which may be symmetrical in construction should be presented with sufficient cross-sections to adequately show the configuration and to allow for computation of capacity. Geometric volume formula may be used in lieu of capacity table. Settling basin type reservoirs which are in series, separated by dikes, may be filed for under one application. We will advise in this regarding each specific instance.

ENLARGED VIEWS:

13. When more than one section subdivision is involved in an enlarged view, subdivision lines of survey must be shown only as applicable to the view - complete subdivision does not need to be shown, however, the subdivisions (sections, townships and ranges) must be identified as applicable.

14. For requirements regarding section line intersect distances - See Page 57, sub-paragraph "c" under Section 7, Chapter VIII of the Manual.

APPLICATIONS: - Pollution control or industrial facilities

All information presented on the application in more than one place and/or cross-referenced to the accompanying map MUST BE IDENTICAL - it cannot merely mean the same thing.

RESERVOIR: - Form S.W. 3

NAME OF FACILITY - use a short distinctive name.

Item 1 is self explanatory.

Item 2 - Do not enter the name of the consulting engineer or firm who may have prepared the application and accompanying map unless the consultant is to actually file notices of Commencement of Work and of Completion of Construction. All correspondence regarding clarification of technical anomalies will be directed to the party specified in the letter of transmittal or the certifying engineer.

Item 2 cont. - All correspondence after the application has been granted permit status will be directed to the agent specified herein.

Item 3 ----- ENTER "Industrial - Pollution Control - See Remarks" under Remarks on the second page of the application, explain the complete purpose of the reservoir, its proposed function and method of operation.

Item 4 ----- If by-pass ditches are provided and the source originates from ground water - enter the name of the well and complete permit number; and then state: "Reservoir is located on (name of natural drainage) trib. of -- (and complete the tributary sequence)." If the original appropriation is obtained from surface water - enter name of facility, permit number and name of source of the appropriation and then provide second statement as above.

If the reservoir will receive water from one of the sources stated above and from the stream upon which it is located -- identify original industrial appropriation and then state: and from (Name of stream and complete the tributary sequence).

Item 5 ----- Please refer to reference (f. Item 5) on Pages 8 and 36 of the Manual for information regarding this item. If this Township has been resurveyed, then enter "Resurvey" following the statement on the application.

Items 6,7,8,9 and 10 are self explanatory. See pages 36 and 37 of Manual.

SIGN AND DATE THE APPLICATION.

REMARKS ----- Thoroughly explain any peculiarities regarding this facility. If additional space is required, please attach a properly identified addendum. THE ANTICIPATED LIFE OF THE FACILITY MUST BE STATED HEREIN.

NOTE: Stock Reservoirs are considered permanent water rights and should be FILED IN THE NAME OF ENTITY IN THE STOCK BUSINESS and may be in combination with B.L.M. or State Board of Land Commissioners. NO OTHER USE OF THE WATER MAY BE MADE UNDER APPLICATIONS OF THIS CATEGORY WHICH ARE FILED ON FORM S.W. 4.

DIRECT DIVERSION - Original facility - Form S.W. 1

NAME OF FACILITY, Items 1 and 2 are as explained under Reservoir above.

- Item 3 - Generally, this will be: "Industrial - See Remarks" and under remarks, thoroughly explain the proposed use of the water.
- Item 4 - Provide the name of the stream or natural drainage from where the water is to be obtained and then complete the tributary sequence. See reference (e. Item 4) Page 8 of the Manual.
- Item 5 - See explanation of this item under "Reservoir" above.
- Item 6 - is self explanatory.
- Item 7 - This must be the capacity of the facility AT THE POINT OF DIVERSION and the capacity must be stated in cubic-feet-per-second in two place decimal equivalents thereof.
- Items 8 and 9 are self explanatory.
- Item 10 - Please thoroughly read directions printed on the application for this item and then refer to pages 17 and 18 of the Manual for proper method of entry under this item.

REMARKS - See comment under "Reservoir" above.

SIGN AND DATE THE APPLICATION

PLEASE CONTACT THE GROUND WATER SECTION OF THIS OFFICE FOR INFORMATION REGARDING DIRECT APPROPRIATIONS FROM WELLS.

NOTE:

In some cases where drainage intercept ditches are required to route natural flow around the mining area, several natural drainages will be involved and intercepted. This construction may form reservoirs on some of the natural drainages. These reservoirs will be filed on and will generally be for Industrial -- See Remarks and under remarks explain the use, such as Flood control, pollution control or other. This will generally necessitate filing applications for reservoir supply ditches. The first application will be for the total length of the ditch and the source will be the first upstream drainage intercepted, such as, XXX Ditch and its source identified under Item 4; the second will be, XXX Ditch - (name of drainage) diversion, etc. All filed on Form S.W. 1. -- See NOTE under Section 2 (a) page 6 of the Manual.

In other cases, reservoir supply ditches may be required. You will be advised as to this requirement regarding individual situations.