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DEPARTMENT OF NATURAL RESOURCES
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November 25, 1992

Mr. David Pearce
Sunnyside Cogeneration Associates
P.O. Box 58087
Salt Lake City, Utah 84158-0087

Dear Mr. Pearce:

Re: Technical Deficiencies, Sunnyside Cogeneration Associates, Sunnyside Coarse Refuse Pile at Sunnyside Mine, PRO/007/035, Folder #2, Carbon County, Utah

Enclosed please find the first technical deficiencies document for the Sunnyside Cogeneration Associates' coarse refuse pile permit application package (PAP), updated through November 12, 1992. This PAP was determined complete on October 28, 1992 which meant that there was information, albeit **not technically adequate** information, in the PAP as required by the Utah Administrative Code R645. It should be understood that additional deficiencies may be identified in the future as a result of the submittal of more detailed information.

Many of the deficiencies are general in nature because specifics were not provided to the Division when the PAP was determined complete. One problem found thus far are repetitive comments that **contain conflicting statements** throughout the PAP. This was a common concern for all of the technical disciplines in reviewing the PAP. Obviously, all conflicting statements must be corrected. As required by R645-301-121.100 and R645-301-121.200, the permit application must "contain current information as required by R645-200, R645-300, R645-301 and R645-302, and be **clear and concise**". Without a clear and concise document, the review time is, by its very nature, longer. Additionally, pursuant to R645-301-132, the technical analyses must be planned by or under the direction of a professional qualified in the subject to be analyzed.

More detailed information is required for the mining operation of the coarse refuse pile and slurry ponds. As required by R645-301-116.100, "Each permit application will state the anticipated or actual starting and termination date of each phase of the coal mining and reclamation operation and the anticipated number of acres of land to be affected during each phase of mining over the life of mine". Additionally, R645-301-521 continues by requiring that the "permit application will describe and identify the lands subject to coal mining and reclamation operation over the estimated life of the operation and the size, sequence, and timing of the subareas for which it is anticipated that individual permits for mining will be sought." This means the mining, including the waste handling portion of the mining plan, and the reclamation plan.

Ms. Alane Boyd from Eckhoff, Watson, and Preator, has been meeting with the technical staff informally and updating the PAP materials discipline by discipline. This informal procedure has attempted to expedite the permitting process. However, at a certain

point in time it will be necessary for the technical staff to review that plan as a **whole**, to make sure that the PAP is a comprehensive, clear and concise and technically adequate document. At a meeting held on November 20, 1992 with Ms. Alane Boyd and Mr. Brian Burnett, it was decided that the submittal date will be December 4, 1992.

I have also spoken to Mr. Fred Finlinson, (Callister, Duncan, and Nebeker), as well as Ms. Alane Boyd, about the compliance aspects of this project. I am concerned that the compliance for this project should be considered **now** . The permitting and compliance of this site go hand in hand. It will be incumbent upon Sunnyside Cogeneration Associates to comply with the Utah Coal Regulatory Program and all requirements of the approved permit. It would be very useful to include the compliance personnel **now** in the permitting, so that they are aware of the standards to which structures, diversions, culverts, roads, etc., must be built, maintained and reclaimed.

It was stated in the November 6, 1992 response (R645-112.230) that AML fees are "not applicable", which is erroneous and must be corrected. A letter under separate cover from Lowell Braxton to you dated November 18, 1992 explains why the AML fees are applicable and the ramifications of non-payment.

A status report of the Operating Agreement between Sunnyside Cogeneration Associates and Sunnyside Coal Company is also requested at this time. That agreement must become part of the permit record for this facility.

For clarification purposes and a reminder, a reclamation surety will have to be posted before a permit can be issued, see R645-300-134.

If you have any questions, please call me. In conclusion, the Division requests the submittal of current, clear, concise and technically adequate information for the entire PAP.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

pgl
Enclosure
cc: Brian Burnett, Callister, Duncan, and Nebeker
Alane Boyd, Eckhoff, Watson, and Preator
Lowell Braxton, Associate Director, DOGM

Sunnyside Cogeneration Associates
Sunnyside Refuse Pile
PRO/007/035

TECHNICAL DEFICIENCIES

R645-301-200. SOILS (HS)

R645-301-230. Operation Plan

The sequential revegetation procedure outlined in the applicant's ICR response must be discussed in greater detail. Many refinements are necessary and should be discussed with Division staff.

The scarification of the "subgrade" material to a depth of two inches is not adequate to promote root penetration or prevent soil slippage. Minimum scarification must account for the depth of wheel compaction of standard earth moving equipment (approximately two feet). Please make necessary revisions.

The compaction of topsoil as state in the applicant's ICR response (R645-301-230) directly contradicts the soil redistribution regulations which are intended to prevent compaction. The applicant must revise this statement.

The permittee must submit as-built drawings of the topsoil stockpiles. Adequate cross-sectional representations of each topsoil stockpile must be provided to determine the volume of topsoil within each stockpile.

The applicant's proposal to apply 435 lbs./acre of fertilizer (10-10-10) to the regrade soil is not an optimal type or rate of fertilization. In addition, fertilization recommendations should be formulated subsequent to soil sampling and analysis.

The applicant must describe the methods by which the topsoil stockpiles will be protected from wind and water erosion. This must include a commitment to revegetate (seed mixture?) the piles for long term protection and construction of a berm at the base of the stockpiles as interim containment of soil that may be displace while vegetation becomes established.

In accordance with the Division's Guidelines for the Management Of Topsoil and Overburden, an Order I soil survey is require for all areas to be disturbed. Please make necessary revisions.

The applicant must depict, on an appropriate map or plate, the sample site locations within each borrow area.

R645-301-300. BIOLOGY (SW)

Editorial comments are as follow:

1. On page 300-14, Pinstemon is spelled Penstemon and Cerccocarpus is spelled Cercocarpus.

2. On page 300-5, slina is spelled salina and bymenoides is spelled hymenoides.

3. On page 300-16, no interim seed mixture is found on page 17 as referenced.

4. Why is the first paragraph of page 300-21 included in the text, this does not relate to anything.

The following deficiencies are mostly general in nature since minimal specifics were provided to the Division to comment on. Also, most of the comments concerning the reference areas and success standards will be presented after the site visit with Eckhoff, Watson, and Preator, Mt. Nebo Scientific, and the Division. However, the applicant is advised that prior to permit approval, sampling and success standards will be stated in the text as if they had been done. Generalities will not be accepted.

The applicant is instructed to remove repetitive comments and paragraphs and compile similar sections into one area of the text. These repetitive sections contain conflicting statements. When this is done, R645-301-340., Reclamation Plan, will be reviewed.

R645-301-321.100.

No description of the Atriplex/grass or the macrophytic community is provided.

R645-301-321.200.

Estimates of productivity for each of the three communities must be provided prior to permit approval.

R645-301-323.400.

Plate 3-1 does not clearly delineate each vegetation type. The map must also show all vegetation contiguous to the permit area.

A vegetation map should be provided which estimates the extent of each of the three vegetation types which were expected to have occurred on site. These should probably be designated on a post mining topography map.

R645-301-322.

The permit states "few occurrences of Fish and Wildlife have been observed within the SCA Permit Area". Please provide a reference for this statement.

R645-301-322.210.

Please provide a reference for who determined that no endangered or threatened species occur within the permit area.

R645-301-331.

Please provide greater detail for interim seeding. Explain when and under what conditions interim seeding will be done and what methods of seeding will be used.

R645-301-341.100.

Please provide a schedule for the completion of each major step in the revegetation plan. This is to include seed ordering, implementation, repairs, and inspection.

R645-301-341.210.

Elymus salina is the wildrye indigenous to the site and should be used in lieu of *Elymus cinereus*. This will require a commitment of advance seed ordering to allow the seed company to collect the seed.

The seeding rates for Winterfat, Ephedra, and Cliff Rose are very low and should be increase to at least a half pound PLS per acre.

Please specify which subspecies of Artemisia tridentata, big sagebrush (not bug) will be used in the seed mix.

No seed mixture was found for the Sagebrush/grass or Atriplex/grass community.

R645-301-342.100.

The current plan does not include enhancement measures for wildlife. Seeding or planting is just reestablishing the previous existing vegetation. Please propose detailed enhancement techniques such as guzzlers, rock piles, etc. or explain why enhancement is not practicable.

R645-301-352.

Contemporaneous reclamation or permanent reclamation will occur as areas become available. The applicant must define a schedule for contemporaneous reclamation. The schedule may include criteria for reclamation such as: when more than two acres are available that will not be redisturbed, the area will be reclaim in accordance with the approved plan.

R645-301-353.110.

Please provide a measure of diversity for revegetation success.

R645-301-500. ENGINEERING (JK)

R645-301-512.100 (page 500-3)

Hydrology maps must be certified by a qualified, registered, professional engineer or land surveyor. Plates 7-2 and 7-3 are not properly certified.

R645-301-513.200 (page 500-3)

The plan must show which impoundments are subject to the requirements of 30 CFR 77.216 and which are not.

R645-301-513.400 (page 500-3)

The plan must show how the refuse pile is to fulfill the requirements of 30 CFR 77.214 and 30 CFR 77.215.

R645-301-513.800 (page 500-3)

The plan must include a plan for extinguishing coal mine waste fires which is acceptable both to MSHA and the Division.

R645-301-514.300 through 514.330 (page 500-4)

Again, the plan must show which impoundments are subject to the requirements of 30 CFR 77.216 and which are not.

R645-301-521.150

The cross sections on Plate 5-14 do not match the topography shown by the contours on the accompanying map.

R645-301-521.252 (page 500-7)

Disturbed area markers must be in place throughout the operation, not just during reclamation.

R645-301-523 (see also 521.141, 541.162 and 30 CFR 780.14) (pages 500-7 to 500-8)

The plan must include a mining plan. The mining plan must include not only the information already in the plan, but also a detailed plan and schedule showing where and when excavation will take place (sequence and timing of mining and reclamation).

R645-301-527 (page 500-11)

Roads must be classified as either primary or ancillary (527.110) and their specifications must be shown in the plan (527.210).

R645-301-528.320 (pages 500-11 to 500-14)

The plan must include a detailed plan, with designs and drawings, for disposal of coal mine waste.

R645-301-528.320. Coal Mine Waste (HS)

The proximate analysis of the core samples provided (Appendix 6-1, pages 16 and 17) indicate a substantial quantity of ash (55% by weight) production subsequent to combustion of the refuse and slurry material. While this does not indicate the precise quantity of waste rock (i.e., noncombustible reject material) no other reliable estimate has been provided which accurately represents the amount of noncombustible waste material likely to be encountered during mining operations. The applicant contends that approximately 5% (by weight) or 475,000 cubic yards (October 27,1992 ICR Response, R645-301-240) of the refuse will require disposal within the permit area and reclamation. The basis for this estimate has not been presented. Therefore, the applicant must describe the logic and methods employed to arrive at this volume estimate. Unless the applicant can precisely quantify the volume of waste rock produced utilizing scientifically sound methodologies, the applicant must separately design the waste rock disposal facility to incorporate various waste rock volume scenarios. The designs must include contingency plans for the excavation and disposal of the hardpan layer encountered at the refuse/soils interface (see discussions below).

In addition, the present proposal for waste disposal is completely inadequate. The applicant has not provide designs or cross-sections of the proposed configuration and reclamation of the waste rock pile, surface area drainage, maximum slopes, etc. The proposed location of the waste rock disposal facility (Plate 5-15) lies in the middle of the Coarse Refuse Pile (CRP). Without specific mining plans, the feasibility of placing waste in this area is questionable. Essentially, how will the applicant dispose of the said material in the middle of the refuse pile without first moving the refuse material.

R645-301-533.100 (pages 500-15 to 500-16)

The plan must include a demonstration of stability for each impoundment. Impoundments which are subject to the requirements of 30 CFR 77.216 must have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions and a seismic safety factor of at least 1.2. Impoundments not subject to 30 CFR 77.216 must have a static safety

factor of at least 1.3 for normal pool with steady state seepage saturation conditions.

R645-301-534.130 (pages 500-16 to 500-17)

The plan must include a demonstration that all road embankments have a static safety factor of at least 1.3.

R645-301-536.110 (500-17 to 500-18)

The plan must include a demonstration that the coal mine waste disposal facility will have a minimum long-term static safety factor of 1.5.

R645-301-542.200 (page 500-20)

The plan must include a reclamation plan with contour maps and cross sections which show the final surface configuration of the permit area.

R645-301-542.800 (page 500-21)

The plan must include a reclamation cost estimate as described in R645-301-830.100 to R645-301-830.300. The earthwork quantities shown in Table 8-1 are not adequate as their source is not identified and Appendix 6-1, though mentioned in the plan, is absent.

R645-301-553.250 Refuse Piles (HS)

The CRP and the East and West Slurry Cell, in accordance with the regulation cited, must be covered with four feet of suitable material unless the permittee can prove that alternative topsoil depths are adequate to fulfill the R645 Rules. The applicant has not proven that alternative topsoil depths are adequate to meet the R645 Rules nor has the applicant committed to cover the refuse material with four feet of non-combustible, non-acid and non-toxic forming materials or bonded for the currant conditions that define the point in the planned mining operation that presents the greatest estimated reclamation costs for the permit term. Therefore, the applicant must commit to and submit designs for covering the refuse with four feet of suitable topsoil material. The reclamation bond must reflex the aforementioned reclamation commitments.

R645-301-553.252 (page 500-23)

In final reclamation, the coal mine waste disposal facility must be covered with at least 4 feet of suitable material, while the plan specifies only 18 inches.

R645-301-700. HYDROLOGY (KW)

The plan proposes to remove the coarse refuse piles, tailings ponds and associated sediment control facilities from the Sunnyside Coal Company's (SCC) existing permit area and place it into the Sunnyside Cogeneration Associates' (SCA) permit area. Ten impoundments are included in the SCA permit area. The current submittal includes design plans for five of the sediment ponds. Additional information is forthcoming for the remaining five impoundments.

Again page numbering would aid the operator to find and respond to deficiencies. The sediment pond designs pages are not numbered, therefore I can only list the deficiencies without page references. These most recent submittals should capable of being inserted into the PAP.

R645-301-724.200 Baseline Water Quality

Baseline water quality sampling sites are shown on Plate 7-2. It includes 5 sites: F-2, Ice-1, CRB, 004 and the well. Data is provided for sites 004, Ice-1, CRS and CRB. No baseline water quality information is provided for sites F-2 and the city well. This information will need to be provided as specified in R645-301-724.200 to determine seasonal variation in quality and quantity for any discharge into water bodies within and adjacent to the permit area. Additionally, R645-301-724.310 requires the operator to demonstrate through the PHC what impacts the operation will have on the quality and quantity of surface and groundwater in the permit and adjacent areas including the extent to which surface and groundwater monitoring is necessary.

The plan discusses the seep emitting from the refuse pile and indicates that through the data submitted to date demonstrates that the water meets all water quality standards for class 4 and 3C receiving streams. A cursory examination of this data shows that the seep water quality contains Total Dissolved Solids (TDS) ranging from 3090 up to 5950 mg/l and averaging 5136 mg/l. The class 4 TDS standard is 1200 mg/l. The data shows that this seep

averages 4.3 times higher than the receiving water quality standard for TDS. Even using the current UPDES permit limitation for TDS of 1650 mg/l the seep from the refuse pile exceeds the standard. No baseline data was submitted to compare this seep with other local seeps and springs. An assessment of impacts and need for monitoring cannot be made from the information provided.

Additionally, previous geotechnical reports and the Sunnyside Mine plan identify this seep as water from the slurry cells which has percolated through the refuse pile, flowed along the refuse/soil interface and then emerges at the bottom of the refuse pile. This water is a mine related point source discharge and will need to the be permitted through the Utah Pollution Discharge Elimination System (UPDES). report. An application for permitting or an actual UPDES permit will need to be included in the mine plan.

R645-301-728 Probable Hydrologic Consequences Determination

This section concerns the projected impacts from the refuse mining on the hydrologic balance both in and adjacent to the permit area. The operator indicates that no impacts to the hydrologic regime are anticipated. This was based on review of discharge data from the Clear Water pond and the Coarse Refuse Toe pond.

The PHC does not discuss the seep at the base of the refuse pile. This seep, as discussed above, fails to meet water quality standards. A discussion of the permitting actions planned and potential impacts to Icelander Wash will need to be incorporated into this section.

R645-301-731.300. Acid- and Toxic-Forming Materials (HS)

The applicant has not submitted plans to determine the Acid- and/or Toxic-Forming Potential (ATFP) of the waste rock material (noncombustible reject material) during operations or at the time of final reclamation. The plans must include at a minimum sample frequency, sample density, field sampling methods, constituents analyzed, and laboratory methods employed.

The applicant has not provided adequate physicochemical analysis of the coarse refuse and slurry material for the purposes of determining the acid- and/or toxic- and alkalinity-producing potential of the material. The applicant, in response to the Division's Initial Completeness Review, contends that refuse analyses (Appendix 7-17) and roof and floor analyses (Appendix 7-18)

demonstrates the non-acid and non-toxic nature of the material. The February, 1981 report does provide some physicochemical analyses of the refuse material (four samples) but omits analysis of the Acid-Base Potential, Selenium and Boron. The roof and floor data provided actually indicates acid pH values, net acid potentials, unacceptable sodium adsorption ratios, electrical conductivity and boron concentrations. Therefore, it is difficult to understand the applicant's statements regarding this matter. The existing refuse material has been processed, undergone size reduction, been exposed to weathering processes, changes in moisture content and reduction-oxidation potentials, been expose to the effects of the migration and concentration of soluble constituents, etc. Therefore, the applicant must submit specific plans, to be implemented prior to mining activities, for the collection and analysis of refuse material within the Coarse Refuse Pile and the East and West Slurry Cells to determine the ATFP of the waste material. The plan must include a discussion of the potential for, and mitigation of, water quality impacts and/or revegetation problems attendant to the above-mentioned materials.

The Coal Refuse Borehole Logs (Appendix 6-1, A-1 through A-17) depict a yellow, orange-red staining of the alluvial material and Mancos Shale at the bottom of the refuse/slurry fill in the following drill holes: 91-2; 91-3; 91-6; 91-7; 91-10 and 91-11. The staining is most likely the result of pyrite (FeS^2) oxidation and the subsequent migration of iron, manganese and other metals to the refuse-Mancos Shale/alluvium interface. Once the metals contacts the natural material, a precipitant is formed. A precipitant similar to that described in the drill logs was observed, by this writer, after a headcut formed below the Old Coarse Refuse Road. The roadbed is composed of refuse material from the Sunnyside Mine and is underlain by Mancos Shale. The precipitant was indurate and has formed a 2-3 cm thick hardpan below the roadbed. The hardpan, potentially several feet thick underneath the refuse material (see borehole logs), has likely impeded the vertical movement of water resulting from slurry dewatering and precipitation. The seep at the bottom of the CRP is most likely the result of water movement, in a near horizontal manner, along the refuse induced hardpan aquitard. As percolation of water occurs, various metal constituents dissolved and are subsequently transported. This theory is even more substantiate by the fact that water quality analysis of the seep water indicate unusually high Iron, Manganese and Total Dissolved Solid concentrations when compared to the quality of the water emanating from adjacent springs, in mine water quality (JBR Consultants Inc. Spring and Seep Survey {1986} and Bookcliffs Commercial Laboratories Water Analysis Report {1983}) and receiving waters.

The applicant states that the water from the seep at the bottom of the coarse refuse pile (CRB) meets all standards for Type 4, Agricultural Uses and for Type 3C, Aquatic Wildlife Uses. This statement is completely false. The standard for Total Dissolved Solids (1200 mg/L) has been exceeded every month for which water quality data is available during 1986-1988 and 1990-1992. The minimum Dissolved Oxygen content (i.e., 5 mg/L) was not attained during Aug.-Oct./1988, June-Aug./1990, Dec./1991 and Jan./1992. The standard for Iron (i.e., 1 mg/L) has been exceeded during the following months: Feb./1986, Aug./1986, Nov./1986, March/1987, Aug.-Nov./1987, Jan./1988, Feb./1988, April-June/1988, Aug./1988, Sept.-Dec./1990, Feb./1991, Dec./1991, Jan./1992, Feb./1992, Sept./1992 and Oct./1992. A preponderance of information exists within the ACT/007/007 mine file which proves that the seep at the bottom of the CRP is the result of slurry dewatering activities and water quality does not meet state and federal water quality effluent limitation standards. Therefore, the applicant must obtain a UPDES permit and meet the applicable water quality standards for the water emanating from the bottom of the CRP.

R645-301-732 Sediment Control Measures

SEDIMENT PONDS

The submittal references R645-301-742.225.2 as an exemption to the single open channel spillway requirements. This regulation is actually an exemption to the location guidance provided for non MSHA ponds. R645-301-742.224 allows for the exemption to the single open channel spillway if the pond can contain the design storm event. This confusion exists due to review of the Sunnyside Mine sediment ponds conducted in 1992.

R645-301-712 & R645-301-512

All hydrology maps associated with this section need PE stamps as required by R645-301-512. EWP submitted new calculations and maps for the following five sediment control structures. A new Plate 7-1 was submitted showing watershed areas for these ponds. This plate is not PE certified.

Pasture Sediment Pond

R645-301-731, R645-301-743 & R645-301-744

Plate 7-1 was used to calculate the land area contributing flow to this sediment pond. Plate 7-1 shows the area draining into this sediment pond. This area when digitized contains about 12 acres contributing flow to this sediment pond. Runoff calculations were done using 7.8 acres of area. This discrepancy needs to be clarified.

Plate 7-9 provides cross sections for this pond through the embankment spillway and through the pond. The cross section does not show the sediment elevation, maximum water level elevation, freeboard, the principal spillway elevation, the emergency spillway elevation, the decant elevations, and the slopes of these spillways. Stage capacity and stage discharge curves are required to show compliance with R645-301-731. Additionally, the maps do not provide adequate contours to assess the pond's capacities.

An assessment of the ponds volumetrics and ability to handle the design storm events is not possible without this information. No vertical scale is provided but I assumed the tick marks to represent the contour interval which was calculated at 5 feet based on the difference of the bold contour lines. This should be indicated on the map. No north arrow is present.

R645-301-712 & R645-301-512

Plates 7-1 and 7-9 do not contain the PE certification stamp.

Borrow Area Pond

As per my phone conversation with Alane Boyd of EWP on November 18, 1992, the design for this pond is erroneous. The watershed shown is about 100 acres short of actual design. Ms. Boyd indicated that the corrected material would be submitted Friday, November 20, 1992, along with the remaining five ponds.

A cursory review of this sediment pond shows that much of the information required is included on plates 7-12a and 7-12b. The next submittal should include but not limited to adequate contours, stage capacity and stage discharge curves.

Old Coarse Refuse Road Sediment Pond

R645-301-731, R645-301-743 & R645-301-744

Plate 7-1 was used to calculate the land area contributing flow to this sediment pond. This area when digitized shows about 9.5 acres contributing flow to this sediment pond. Runoff calculations were done using 9.36 acres of area. This degree of difference is acceptable.

Plate 7-11 provides specifics to the design of this pond. Cross sections for this pond through the embankment and through the pond are given on plate 5-8 of the original submittal. The cross sections and design map do not show the sediment elevation, the maximum water level elevations, freeboard, the principal spillway elevation, the emergency spillway elevation, or the slopes of these spillways. Additionally, adequate contours, stage capacity and stage discharge curves are required to show that the pond complies with R645-301-731.

An assessment of the ponds volumetrics and ability to handle the design storm events is not possible without this information. No north arrow is present.

R645-301-712 & R645-301-512

None of the plates associated with this pond's design have been stamped with a PE certification.

Rail Cut Sediment Pond

R645-301-731, R645-301-743 & R645-301-744

Plate 7-1 was used to calculate the land area contributing flow to this sediment pond. Three areas contribute runoff to this pond. These areas when digitized contain 8.3, 20.2, and 20.1 acres plus .56 acres for the sediment pond, totaling 49.2 including the sediment pond surface. Runoff calculations were done using 57.51 acres. Although the difference here is significant the area used to calculate runoff is greater than that digitized as contributing to the pond. The text portion of the design references 759.41 acres of land contributing to this pond. This discrepancy needs to be clarified.

Plate 7-8a and 7-8b provide the map and cross sections. The cross sections pass through the pond at various intervals. The cross section and plan map do not show the sediment elevation, the maximum water level elevation, freeboard, the principal spillway elevation, the emergency spillway elevation, or the slopes of these spillways. Adequate contours, stage capacity and stage discharge curves are required to show compliance with R645-301-731.

An assessment of the ponds volumetrics and ability to handle the design storm events is not possible without this information. No scale or north arrow is present on plate 7-8b.

R645-301-712 & R645-301-512

Plates 7-1 and 7-8a and 7-8b do not contain the PE certification stamp.

Coarse Refuse Toe Sediment Pond

The design information for this pond is located on Plate 7-7. The drainage area for this pond is shown inset on this plate. Cross sections for the embankment, the spillways, inlet diversions and outlet channels are presented. Elevations are presented for the embankment crest, the principle spillway and the emergency spillway.

The watershed map for this pond digitizes to about 7.5 acres. Adequate contours, stage capacity and stage discharge curves are required to show compliance with R645-301-731.

Other Impoundments

Five other impoundments are included in this project. These structures are listed below. According to Alane Boyd, design information will be submitted sometime in the near future. The following impoundments did not have information re-submitted by EWP as of December 12, 1992. This information was delivered on November 20, 1992 but was not included in this review.

Slurry Ponds 1; Slurry pond 2; Clear Water Pond; East Slurry Cell; West Slurry Cell

R645-301-742.300 Diversions

Diversions associated with this permit area have not been identified. Each diversion needs to be shown and labeled on the map. The cross sections for each diversion needs to be provided and shown to be adequate for the design storm event.

The text submitted in the original submittal references Plate 7-1 as showing all of the Collector conveyance ditches associated with this permit. The map legend shows the ditches as a thin dashed line. These ditches do not show up very well on this map. What does the dashed line with two dots between dashes indicate? Please place this on the legend.

jbe
SCA.ALL