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K A I S E R S T E E L C O R P O R A T I O N

Sunnyside, Utah

May 12, 1977

COAL MINE OPERATING REGULATIONS

FEDERAL REGISTER

30 CFR 211

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DIVISION OF OIL, GAS, & MINING

211.10 Exploration and Mining Plans

(a)(1) Seven Copies submitted.

(c)(1) Person Responsible for Operations:

Name: Lloyd Heath

Address: KAISER STEEL CORPORATION
P. O. Box D
Sunnyside, Utah 84539

Lease Numbers: 010140, 062966-063383-068754.

Parts of U. S. Lease No. 068754 were acquired from United States Steel Corporation in a lease exchange agreement.

(c)(2) Environment in the Mining Area:

(Note--Parts of the following information have been taken from a draft Environmental Analysis Report and Technical Examination, prepared by the Bureau of Land Management. The E.A.R. was prepared for a new lease area north of existing Kaiser Mines.)

Climatic Conditions (See Exhibit I):

The lease area lies in an annual precipitation belt of 13-25 inches. The climate of the region is typical of areas in this part of the state. The summer season is generally short with maximum temperature readings in the low 80's and low summer readings in the low 40's. Fall and spring seasons are generally erratic in nature with snow falling as early as September and as late as early June. Winters are often severe with temperatures below minus 30° occuring at times. Generally the major snow falls occur in the months of January, February, and March.

The prevailing wind is from the southwest and velocities vary greatly by month and year. Peak wind velocities generally occur during June and July.

Geology (See Exhibit I):

The coal in the Sunnyside area is mined from the Upper and Lower Sunnyside seams in the Blackhawk Formation, a part of the Mesaverde Group of Late Cretaceous age. The two seams are probably splits of one major bed. Another coal bed (Gilson coal) is present about 280 feet below the Lower Sunnyside seam but is not mined at present.

The major coal beds of the Blackhawk Formation are underlain by thick, massive, cliff-forming sandstones or coarse-grained silt-stones and shales which resemble the Mancos Shale. The cliff-forming units are eastward-thinning siltstone and sandstone tongues (Kenilworth and Sunnyside Members) of the Mesa verde Group which were deposited in fresh or brackish water, while the slope-forming units are westward-thinning tongues of the underlying marine Mancos Shale.

Above the Blackhawk Formation are more than 4000 feet of rock of Late Cretaceous and Tertiary age, mostly sandstones, shales, siltstones, and variegated mudstones, and siltstones. Directly above the Blackhawk lies the Castlegate Member of the Price River Formation, a light-colored dettaic, massive sandstone. The remainder of the Price River Formation consists of carbonaceous shales, sandy shales, and lenticular sandstones of fluvial and marine origin.

The North Horn Formation, of both Cretaceous and Tertiary age, overlies the Price River Formation and consists of fluvial cliff-forming sandstones and mudstones. Overlying the North Horn is the Colton Formation, composed of fluvial redbeds with channel sandstones. Above the Colton lie the various members of the Green River Formation of Eocene age which form the Roan Cliffs and were depositied in a lacustrine environment.

In the northern part of the Sunnyside district the beds strike northwest (parallel to the Book Cliffs) and dip gently to the northeast at 5° - 15°, mostly less than 10°. Faulting does not occur on the surface of the proposed leased tracts and would probably be of minor displacements if it occurs in the sub-surface. Minor northeast-trending faults occur farther to the south in the Sunnyside Mines, but their maximum throw does not generally exceed 30 feet.

The soils in the lease area belong to the Castle Valley - Kenilworth Association and are identified as (1) mountain loam, (2) mountain stony loam, and (3) mountain loam (oakbrush) types.

The soils are generally shallow, calcareous, well-drained, and are gently sloping to steep. Water holding capacity of the soils is considered to be good, with the exception of the mountain stony loam.

Vegetation:

Plants (Aquatic)--One aquatic plant community is located adjacent to the lease area. This is located within and alongside Grassy Trail Creek and the Whitmore Canyon Reservoir. Aquatic plants present include: Sedge *Carex spp*, Rush *Juncus spp*., Horsetail *Equisetum spp*., and Bulrush *Scirpus spp*., and *Algae spp*.

Plants (Terrestrial)--Three major terrestial plant communities are found within the lease area or adjacent to the lease area. The three plant communities are broadleaf tree, pinyon-juniper, and mountain shrub.

Broadleaf Tree Community--This plant community is found along Grassy Trail Creek which flows adjacent to the lease area. Tree species growing in this area consist of Cottonwood *Populus fremontii*, Streambank willow *Salix spp*., and Utah juniper *Juniperus osteosperma*.

Grass species include Indian ricegrass *Oryzopsis hymenoides*, Bluebunch wheatgrass *Agropyron spicatum*, Western wheatgrass *Agropyron smithii*, and Squirrel-tail *Sitanion hystrix*.

Pinyon-Juniper Community--The Pinyon pine Pinus edulis and the Utah Juniper Juniperus ostersperma are the dominant species in this community. Shrub species found within this community are big sagebrush Artemisia tridentata, Mountain mahogany Cercocarpus montanus, Cliff rose Corvania stansburiana, and Service berry Amelanchier alnifolia.

Grass species found in the community are Bluebunch wheatgrass Agropyron spicatum, Bearded wheatgrass Agrophron subsecundum, Western wheatgrass Agropyron smithii, Big bluegrass Poa ampla, Squirrel tail Sitanion hystrix, and Indian ricegrass Oryzopsis hymenoides.

Mountain Shrub Community--The mountain shrub community is composed of many vegetative species. Tree species commonly found include Douglas fir Pseudotsuga menziissi, Pinyon pine Pinus edulis, and Utah juniper Juniperus osteosperma.

Shrub species commonly found include Service berry Amelanchier alnifolia, Mountain mahogany Cercocarpus montanus, and Snowberry Symphoricarpos oreophilis.

Grass species commonly found include Indian ricegrass Orysopsis hymenoides, Great Basin wildrye Elymus cinereus, Bluebunch wheatgrass Agrophron spicatum, Western wheatgrass Agrophron smithii, and Bluegrass Poa spp.

Livestock:

The area of the sale application falls within the boundaries of two allotments. Use within the two allotments is as follows:

Allotment	North Clarks Valley	Mud Springs
Number and Class of Livestock	155 Cattle	600 Cattle
Season-of-use	4/16 - 5/31	10/15 - 6/15
AUMs	567	2320

The area of the proposed lease is located on rocky points and steep ledges, which are inaccessible to livestock use.

Fish and Wildlife:

The only fish species reported present is the rainbow trout, Salmo gairdneri. DWR has carried out a stocking program, planting several hundred to over a thousand rainbow. No figures are available on current population size nor the extent of the fishery.

Flows are much reduced in summer; reportedly, some sections in the lower part of the stream go dry in the latter summer months. If so, the productivity of the stream would be reduced, and limited to the upper sections near the dam. Spawning areas is adequate to good, food supplies are good, shade is fair to good. The many beaver dams provide areas of good cover for the fish. As long as flows are maintained, the stream has the potential to be a productive trout stream.

Because of easy access and the other recreational use, such as camping and the rodeo area, fishing pressure could be moderate to heavy for a stream of this size. No information is available on just what the fishing pressure might be.

The major big game specie found in the area is deer. The primarily inhabit the area during the fall and winter months. However, some resident deer stay in the general area year long.

Other wildlife species found in the area are chukar partridge, snowshoe hare, cottontail rabbit, bear, mountain lion, bobcats, coyotes, and small mammals such as beaver, marmots, muskrats, tree squirrels, and ground squirrels. Some species of raptors can be found in the area yearlong.

The American Peregrine falcon is an occasional visitor to this area. There are no other threatened or endangered species known to migrate through or inhabit the general area.

(c)(3) Condition of Land Covered by Mining Plan:

The primary land uses in this area are mining and grazing. Past mining activity for tar sand has occurred at the head of Water Canyon, south of Bruin Point.

Other surface use consists of wildlife habitat, primarily deer and upland game birds. Limited recreation values exist for hiking, sight-seeing, camping, and other recreational uses. Anticipated future use is not expected to change substantially.

Uses prior to mining activities were basically the same as existing uses.

(c)(4 & 5) Proposed Use of Land Following Reclamation:

The amount of acreage that will have to be reclaimed is very small. Due to the terrain and location of these areas, the use after reclamation will be basically wildlife habitat.

(c)(6)(i) Description of Proposed Operation:

Nature of Coal Deposit

Moisture	6-8%
Volatile Matter (Moisture-free)	40-42%
Ash (moisture-free)	6-8%
Sulphur (Moisture-free)	.8-1.2%
Fixed Carbon (Moisture-free)	50-54%
BTU/lb. (Moisture-free)	12,500-13,500

Recoverable Reserves (See Exhibit II)

Presently Kaiser Steel is mining on two (2) federal leases. Recovery rates were based on 1000 tons/acre-foot--upper seam; and 600 tons/acre-foot--lower seam.

Lease No.	Seam	Coal Height(Ft.)	Mineable Acres	Reserves (Tons)
062966-063383-010140 (Outside Raise)	Lower	7.5	58	435,000
062966-063383-010140 (Lower No. 1 Mine)	Upper	4.5	443	1,993,500
062966-063383-010140	Lower	7.0	886	6,202,000
068754 (Lease Exchange/U.S.S.)	Upper	5.5	109	599,500
068754 (Lease Exchange/U.S.S.)	Lower	5.5	128	422,400
TOTAL RESERVES				9,652,400

(c)(6)(ii) Mining Methods (See Exhibit II):

The production of coal at Sunnyside is accomplished primarily by longwalls. Seventy percent of the total production comes from longwalls. The remaining 30% is from continuous miners.

Continuous miners are used to develop intake and return air courses that are necessary for longwall production. Presently a room-and-pillar section is also being mined with continuous miners.

Total production from both mines at Sunnyside will be:

	1977	1978	1979	1980	1981
Clean Coal(85% yield)	700,000	700.000	862,000	912,000	856,000
Raw Coal	823,000	823,000	1,015,000	1,070,000	1,007,000
Longwall Percentage	70%	75%	80%	85%	85%

(c)(6)(iii) Reclamation Schedule:

Kaiser Steel is now mining on two federal leases, 062866-063383-010140 and 068754. The latter one being a lease exchange with United States Steel. Three active mining areas exist on the two leases (See Exhibit II).

The Outside-Raise area is the only area of the three active mining locations, that has mining facilities located on the surface; these include a fan installation, power substation, several mine portals and approximately one quarter mile of road.

Completion of mining in the Outside-Raise will take about two years. The facilities located on this property will probably be utilized for the life ot the mine. Upon completion of mining, all surface facilities will be removed and any disturbances caused will have to be reclaimed.

All reclamation work done on grading, backfilling, soil stabilization, contouring, soil preparation, fertilizer application, trees, shrubs, grasses, and planting methods will be in accordance with the Bureau of Land Management's specifications.

(c)(6)(iv) No additional surface structures are anticipated on federal leases at this time.

(c)(6)(v) Major Underground Equipment:

There is a total of seven continuous miners, three longwalls, fourteen shuttle cars and two loading machines now working at Sunnyside. Of this total, only two continuous miners, one longwall, and four shuttle cars are on federal leases.

(c)(6)(vi) Estimated Reclamation Costs:

This section pertains more to strip mining and not underground mining.

211.10 (c)( )(vii) <u>Method and Measure to Comply with Sec. 211.4 and 211.40</u>

- 211.4

a) All operations involving the discovery, testing, development, mining, preparation and handling of coal, and the reclamation and abandonment of affected lands will be conducted pursuant to the obligations, and standards of performance set forth in this part, and will conform to the provisions of all other applicable laws and regulations, including effluent and emission limitations; the terms and conditions of any applicable lease, permit, or license; the requirements of any applicable approved exploration or mining plan; and any orders issued by the Mining Supervisor.

b) Coal mining operations are being conducted so as to ensure the extraction of the coal resource to the maximum extent possible, taking into account existing technology, commercially available equipment, the cost of production, and the quality and quantity of coal resource, so that future environmental distrubance through the resumption of mining will be minimized.

c) The operator is taking all actions necessary to minimize waste and damage to any remaining coal-bearing formations and other mineral resources.

d) The operator is taking action as may be needed to minimize, control, or prevent (1) soil erosion; (2) pollution of air; (3) pollution of surface or ground water; (4) serious diminution of the normal flow of water; (5) especially threatened or endangered species, and their habitat; (6) permanent damage to vegetative growth, crops or timber; (7) creation of unsafe or hazardous conditions; (8) damage to

improvements, whether owned by the United States, its permittees, licensees, or lessees, or by others; (9) damage to the recreational, cultural, scientific, historical, and known or suspected archaeological and paleontological values of the land; and (10) adverse impacts upon adjacent land uses. Good housekeeping practices are being observed at all times.

e) The operator will, when and as required by the Mining Supervisor, monitor water quality to establish data necessary to determine procedures which may be required to minimize, control, or avoid water pollution pursuant to the regulations in this Part.

f) The operator will promptly report to the Mining Supervisor by telephone accidents threatening damage to the mine, the lands or other resources, or accidents which could cause air or water pollution along with corrective actions initiated. Within 30 days after any such accident the operator will submit to the Mining Supervisor a detailed report of any damage caused by such accident and any corrective actions taken. The obligation set forth in this paragraph will be in addition to any obligations which may arise pursuant to the Coal Mine Health and Safety Act of 1969 and any regulations promulgated thereunder.

- 211.40 Operating and Reclamation Standards:

a) Performance Standards

1) In conformance thereto.

2) No overburden or waste materials being deposited on subject leases.

3) In conformance thereto. No surface mining involved, no waste disposal, and no major subsidence in areas involving underground mining.

4) No backfilling or topsoil deposition.

5) Kaiser Steel is operating the Sunnyside Mines under U. S. Environmental Protection Agency public notice and proposed permit UT 0022942 relative to Authorization to Discharge Under the National Pollutant Discharge Elimination System (See Exhibit III).

6) No auger mining.

7) Kaiser Steel has filed for approval by MESA and is operating the Sunnyside Mines in accordance with a "Refuse Pile and Slurry Pond Report" submitted on April 23, 1976 by Kaiser Steel Corporation as required by CFR 77.215-2 and 77.216-2 (See Exhibit IV).

   Kaiser Steel is also operating the Sunnyside Mines under U. S. Environmental Protection Agency public notice and proposed permit UT 0022942 relative to Authorization to Discharge Under the National Pollutant Discharge Elimination System (See Exhibit III).

   The prevailing quality, quantity and flow of water in surface and ground water systems have not been affected in the subject lease areas.

8) It is Kaiser Steel's practice to clean-up and periodically haul away from surface plant and townsite area at Sunnyside, all accummulating rubbish and refuse and to dispose of same in conformance with all local, state and federal regulations and ordinances, and to thus to minimize and control the air and water pollution, and the hazards of ignition and combustion.

   The basic mine surface plant facilities for mine offices, maintenance shops, machinery and mine material storage, coal haulage systems, coal preparation, coal refuse disposal, and water storage as well as townsite facilities are not located on the subject leases (See Exhibit II).

9) No such work underway or contemplated at this time on the subject lease surface areas.

10) Any explosive useage by Kaiser Steel at the Sunnyside Mines shall be planned in conformance with applicable Federal and State laws. No such activity is underway or contemplated at this time on the subject lease surface areas.

11) The operator will design to applicable standards, construct, maintain, and when no longer necessary and unless otherwise authorized in an approved plan, remove all roads, pipelines, powerlines and similar utility access facilities and associated bridges, culverts, and ditches, into and across the site of operations, in a manner that will minimize, control, or prevent erosion and siltation, fugitive dust, pollution of water, damage to fish or wildlife or their habitat and public or private property.

12) Roads will not be surfaced with any acid or toxic producing material. No access roads will be constructed unless (A) the operator shall have first submitted a surveyed profile accompanied by typical cross-sections of the road and ditches, showing pipe, entrance and exit channels and sediment control structures and other structures or configurations to be used on the road to meet performance standards and (B) the location shall have been marked, and inspected and approved by the Mining Supervisor, in consultation with the appropriate authorized officer and the surface owner, if other that the United States.

13) No regrading operations involved at present on subject lease areas.

14) The operator will, except as provided in the following paragraph hereof, allow public access to and upon Federal lands subject to his lease, permit, or license for all lawful and proper purposes, except where such access would unduly interfere with his authorized use.

The operator will regulate public access, vehicular traffic and wildlife or or livestock grazing in all areas of active operations, including lands undergoing reclamation, in order to protect the public, wildlife and livestock from hazards associated with such operations, and to protect revegtated areas from unplanned and uncontrolled grazing. For this purpose, the operator shall provide warning

signs, fencing, flagmen, barricades and other safety and protective measures as may be necessary.

15) No coal surface storage facilities or useage or surface mining involved on subject lease surface areas. Should any accumulation of slack, coal or combustible waste become ignited on surface areas of the subject leases, Kaiser Steel would take all reasonable steps to extinguish same.

16) No surface mining underway on subject leases.

17) No surface mining underway on subject leases.

211.10 Mining Plans

(c)(6)(viii) Anticipated dates for each phase of the mining operation and the anticipated number of acres of land to be affected by such mining(See Exhibit II).

Exhibit II re Mining Plan now contemplated as it affects the subject federal leases. The planned areas involved in such mining together with relevant timing for extraction in each area is shown thereon.

(ix) Compliance steps for air and water quality control laws and regulations.

Kaiser Steel operates the Sunnyside Mines as to air quality control underground subject to the federal Coal Mine Health and Safety Act of 1969 as administered by MESA and the general safety and air quality laws of the State of Utah. Air quality control above ground is subject to the same laws and regulations where applicable and also to review by the Environmental Protection Agency.

Water quality control: As noted elsewhere Kaiser Steel has filed for approval by MESA and is operating the Sunnyside Mines in accordance with a "Refuse Pile and Slurry Pond Report" submitted on April 23, 1976 by Kaiser Steel Corporation as required by CFR 77.215-2 and 77-216-2 (See Exhibit IV). Kaiser Steel is also operating the Sunnyside Mines under

U. S. Environmental Protection Agency public notice and proposed permit UT 0022942 relative to Authorization to Discharge Under the National Pollutant Discharge Elimination System (See Exhibit III).

The prevailing quality, quantity and flow of water in surface and ground water systems have not been affected in the subject lease areas.

(x) Measures for insuring the maximum practical recovery of mineral resource.

Kaiser Steel emphasizes the maximum use of longwall mining methods at the Sunnyside Mines. Further, in development mining preparatory to this principal longwall extraction, Sunnyside practice emphasizes minimizing the number and cross section of longwall panel development coal the widths of longwall panels are set in each area of the mine at the maximum widths possible consistent with the mining conditions existent in each area and with productivity goals.

When mining on federal leases the mine plans normally are verbally approved by the USGS which organization emphasizes achieving maximum practical recovery and periodically reviews mining progress on the site to ensure same.

(xi) Method of Abandonment

Mined out areas are sealed off subject to MESA approval. Seals utilize treated wood or solid concrete blocks. In the lower extremities of a sealed area "U" type drain pipes are usually installed for possible water drainage and in the upper areas test pipes with valves are utilized.

(xii) Underground mining only engaged in; therefore logs and analyses of overburden samples to determine which materials shall be buried and which materials are suitable for placement near the surface for favorable propagation of vegetation not applicable.

(xiii) Hydrology of the Area

The quality of the water in the area is indicated in the attached analysis sheets submitted on May 13, 1976 by the Ford Chemical Laboratory of Salt Lake City to Kaiser Steel (See Exhibit V).

The following excerpts regarding the watershed in the area taken from the U. S. Bureau of Land Management Environmental Analysis Report and Technical Examination of April 1976, prepared relative to Kaiser Steel Corporation's application for a competitive lease on 636.41 acres of land, outlines the principal characteristics of the natural surface water supply in the area:

"One perennial stream, Grassy Trail Creek, flows through Whitmore Canyon. This stream is also called Icelander Creek, and is described as a tributary of Grassy Trail Creek. In addition, there are several intermittent side tributaries. A few springs occur along the canyon, but no information is available on the number, location, or flow.

"In general character, the intermittent tributaries are of moderate to steep gradient, flowing in narrow canyons, with mostly rocky-gravel beds, with silt and sand where gradient reduced. Vegetation is cottonwood-willow in the bottom, with sage and conifer in the canyon bottoms adjacent to the stream channel, and on the neighboring slopes. Vegetative cover is moderate to good along the streambed and on nearby slopes. Because of the adequate cover, erosion is occurring generally at a normal geologic rate. Other than natural eorsion the major erosion comes from roads paralleling the stream, where present, and as a result of human activity, such as mining. At present, the canyons have only intermittent run-off during periods of high precipitation. Because of the lack of water most of the year, these intermittent channels have little direct aquatic habitat; their main influence being on the character of Grassy Trail Creek as the result of water entering during periods of flow.

"Grassy Trail Creek is part of the Price River System, of the Colorado River drainage. It enters the Price River in its lower basin. This basin ranges in altitude from 10,285 feet at Bruin Point, 6 miles north-northeast of Sunnyside, at the head of Water Canyon, a side canyon off Whitmore Canyon, to 4,200 feet at the mouth of Price River into the Green River. Average annual precipitation is greater than 20 inches at high altitudes along the north side of the Price basin. which included the headwaters of Grassy Trail Creek, to less than 8 inches in the lower Price River basin. An appreciable part of the lower basin is sparsely vegetated disected desert. Grazing is the only major land use; probably no more than about 500 acres of bottom lands along the Price River and Grassy Trail Creek are irrigated. The lower basin is underlain by diverse rocks, ranging in age from Jurrasic to Quaternary, that include numerous carboniferous and gypsiferous marine shales. Coal mining is the major industry in the Book Cliffs area in the vicinity of Sunnyside and Dragerton, at the mouth of Whitmore Canyon.

"Grassy Trail Creek has the largest drainage of any tributary in the entire Price River basin. The many tributaries of Grassy Trail Creek have headwaters in a rather wide arc of the Book Cliffs in the northern part of the lower Price River basin, and drain large areas of gravels of Quaternary age and shales of Cretaceous age.

"For purposes of these coal leases, Grassy Trail Creek was inventoried only from the entrance of the Kaiser Mine near Sunnyside upstream to shortly above the dam in Whitmore Canyon, a distance of about four miles. In addition to the survey made for this report, available in the BLM District Office in Moab, two other surveys were made available by the Utah Department of Wildlife Resources office in Price.

"Whitmore Canyon, from the Kaiser mine entrance to the dam, varies in width from 30 to 100 yards. The bottom of the canyon is fairly flat, with fair to good vegetation cover of conifers and sage, with some grasses and forbs. Adjacent to the stream are growths of cottonwoods and willows, although the number of cottonwoods has been considerably reduced by beavers. The adjacent slopes are of moderate to steep gradient, with variable cover of sage, conifers and grasses. The stream has a cut channel in the canyon floor one to several feet deep; the sides of this channel are periodically exposed and still eroding. Because of the moderating influence of the dam upstream, periods of extreme flow have been eliminated. This moderating influence has reduced bankside erosion and allowed formation of a more stable channel and bed. Some erosion still occurs along the stream, mostly from cut banks, especially at corners, but erosion off neighboring slopes, from intermittent side channels, and areas of human disturbance are of more importance.

"The streambed is mainly rock, with some large boulders, mostly rubble and gravel, with some silt, mud, and organic matter. There are many beaver dams along the stream, some currently active; these provide the majority of pool area. In the pools behind these beaver dams, much silt and organic debris has accumulated. As a result, pool depth is seldom over one foot deep, but depths to 3' do occur. Because of the moderating influence of the dam upstream and resulting decrease in high flows, the streambed is fairly stable; there is a fair to good spawning area, up 20 yd^2 of salmonid spawning gravel per 100 yards of stream.

"Human disturbance has had a major impact upon Grassy Trail Creek. A dam was constructed just below the forks of the creek, about four miles above the mine entrance. Water is used for domestic purposes in the Sunnyside-Dragerton and adjacent areas. Only a small amount of water, about

0.1 cfs, was seeping through the reservior in November-December, 1975. Within 200 yards below the reservior, a series of springs, mostly on the west side, contributed sufficient water to raise stream flow to about 0.5 cfs. No flow data are available, but flows of 10 cfs were reported during earlier surveys by other agencies, and flows exceeding 100 cfs have been reported in the past. Water was previously removed by a diversion further downstream, the remnants of which are still in place."

"Water in Grassy Trail Creek, even without mine effluents, is high in dissolved minerals. Data indicate that the water upstream from the junction of Icelander Creek had dissolved-solids concentrations that ranged from 633 mg/l at Whitmore Canyon near Sunnyside to 2,510 mg/l downstream from the junction with Dugout and Rock Creeks near Dragerton. The water at Whitmore Canyon probably is representative of the drainage from areas that have altitudes between 7,000 and 10,000 feet in the Book Cliffs area of the lower Price Basin.

"Icelander Creek is the major tributary to Grassy Trail Creek in the downstream part of the drainage area. Although the geology of the Icelander Creek drainage area is similar to that of the rest of the drainage area of Grassy Trail Creek, the dissolved solids concentration of Icelander Creek (about 3,200 to 6,100 mg/l) is much higher. The water in Icelander Creek was very strongly sulfate; but sodium, magnesium, and calcium all were present in large amounts.

"No attempt was made to survey the two forks of Grassy Trail Creek above the dam because of snow conditions. The west fork was the larger drainage. The bottom of both forks contained good

covers of cottonwoods and willows. Because of the water being used for domestic purposes, any use or disturbance of the reservoir area of the canyon above is severely restricted. Canyon and stream conditions are generally similar to those below the reservoir, although flow is less and disturbance minimal."

The quality of water to be discharged by Kaiser Steel at the Sunnyside Mines to the surface water system is subject to the U. S. Environmental Protection Agency public notice and proposed permit UT0022942 covering Authorization to Discharge Under the National Pollutant Discharge Elimination System(See Exhibit III.).

The prevailing quality, quantity and flow of water in surface and ground water systems have not been affected in the subject lease areas.

(xix) Plans for protecting oil, gas and water wells as well as oil, gas, and underground water resources when encountered.

The subject lease areas are not such that oil and gas will be encountered; in the event, however, that such were ever the case, it would be the intent that those measures clearly called as to protecting any wells that might be developed under the existing federal and state laws and regulations would be adhered to.

Similarly, the subject lease areas are not such that water wells will likely be developed thereon. In the event, however, that such be contemplated in the future then placement and drilling would be accomplished in accordance with then applicable laws and regulations.

With regard to any water encountered in connection with underground mining, such water normally will, depending upon location and occurance, either be utilized as spray water for dust suppression at mining faces in the area or accummulated in the underground water collection and storage system for pumping to the surface with other waters so collected.

(xv) Any justification for not recovering any coal deposits that may be detrimentally affected in terms of future recovery by the coal development operations proposed.

It is the policy of Kaiser Steel at the Sunnyside Mines to emphasize maximum practical coal recovery in all areas as mining progresses and not to plan current operations such that unmined, recoverable coal left at that time in place are thereby made unrecoverable at a later date.

COAL MINING PLAN MAP CHECKLIST

Compliance 211.10 (c) (7)

	Maps Showing	Exhibit No.
i	Topographic, Natural Drainage & Cultural Features	VI
	Archeological & Cultural Features	NA
	Roads and Vehicular Trails	VI
ii	Name of Watershed	VI
	Location of Surface Streams That Mine Waters Are Discharged Into	VI
iii	Plan View of Land to be Affected	II
	Cross Sections of Land to be Affected	NA
	Location & Elevation of Drill Holes	VII
	Nature & Depth of the Various Strata of Overburden	I
	Nature, Thickness & Extent of Any Coal	VII
	Nature, Thickness & Extent of Rider Seams Above Coal to be Mined	VII
	Nature of Strata Beneath Coal to be Mined (at least 20 meters)	I
	Location of the Next Known Deeper Coal Seam Below Coal Seam to be Mined	I
	Location of Any Other Mineral Values Encountered	I
	Hydrologic Data	Covered In Report
	Any Other Relevant Information	"
	Mineral Crop Lines	II
	Strike & Dip of the Coal to be Mined	VIII
	Location & Extent of Known Surface Mine Workings	NA

	Maps Showing	Exhibit No.
iii	Location & Extent of Known Underground Mine Workings	II
	Location of Oil, Gas & Water Wells within 1/4 mile of Affected Lands	NA
	Location of Aquifer	II
	Estimated Elevation of the Watertable & Potentiometric Surface	II
	Location of	
	Spoil	IV
	Wasted or Refuse Areas	IV
	Topsoil Preservation Area	NA
	Impoundments of Water	IV
	Water Treatment Facilities	IV
	Natural or Constructed Drainways	IV
	Cross Sections of Final Surface Configurations	NA
iv	Locations of Surface Structures & Facilities	VII
	Final Planned Topography	NA
	Final Drainage	VI
	Coal Overburden Isopachs	IX
	Proposed Sequence of Mining by Year Over Lease of LMU	II
	Surface Ownership	II
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Note:

NA--Not applicable.