0007

Document Information Form

Mine Number: C/015/004

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To: DOGM

From:

Person N/A

Company N/A

Date Sent: May 11, 1978

Explanation:

SubSidence And Hydrological Monitoring Plans.

cc:

File in:
C/ 015 , 004 , Internal
Refer to:
- ☐ **Confidential**
- ☐ **Shelf**
- ☐ **Expandable**

Date _____ For additional information

SUBSIDENCE AND HYDROLOGICAL MONITORING PLANS

File in:

- ☐ **Confidential**
- ☐ **Shelf**
- ☐ **Expandable**

Refer to Record No 0007 **Date** 5-11-78

In C/ 015 , 004 , **Internal**

For additional information

Hydrologic Monitoring Program
Huntington Canyon #4 Mine
Swisher Coal Co.

There are two important streams in the vacinity of the #4 Mine: Mill Fork is feed by a spring and supplies water for the mine by way of a collection and pumping facility located near the stream. This stream will not be affected by mining in the #4 Mine since it runs in the bottom of the canyon well below the coal seam horizons. The other important stream is in Little Bear Canyon. This stream is fed by Little Bear spring which is a culinary water source for the city of Huntington. Exhaustive study has been done to determine the effect of mining on this spring. A copy of a report prepared by Vaughn Hanson Assoc. professional hydrologists, is included with this submittal.

Swisher will sample Little Bear spring at two locations as shown on the enclosed map on a monthly basis to the extent that weather and road conditions allow. Sampling will be done at two locations on Mill Fork on the same basis. Samples will include the following:

a. quantity as determined by a vee-notch wier
b. pH
c. water temperature
d. specific conductance

Results of sampling will be submitted to the district supervisor at the end of each year. There is no water being discharged from the #4 Mine and if any discharge should become necessary, it will be covered under the EPA NPDES permit #0023116, a copy of which is included here.

SWISHER COAL CO.
P. O. BOX A U
PRICE, UTAH 84501
PHONE 801-637-5050

January 31, 1978

Jim Travis
U.S. Geological Survey
125 South State
Salt Lake City, Utah

Dear Mr. Travis:

The following is submitted in response to your letter of January 23, 1978 requesting additional information for the hydrologic and subsidence monitoring plans for the Gordon Creek #2 and the Huntington Canyon #4 Mines. The information submitted herein is in the same format as your January 23, letter.

Subsidence

1. Enclosed are seven copies of all information submitted.

2. The enclosed maps show:

   a. Area of subsidence. Theoretically surface subsidence is possible above all the minable coal and at 45^{0} angle of draw. This limit is shown on the map as determined by cover isopachs.

   b. All surface facilities.

   c. All mine works (old, existing and projected) for both seams.

   d. Known geologic structures such as faults.

   e. Location of monitoring stations. It should be noted that the topography is extremely rugged in both the Gordon Creek and the Huntington Canyon areas. This makes it extremely difficult to establish a saturation of monitoring points. It is extremely difficult to plan out panels in Gordon Creek because the mine projections are based in large on the location and configuration of the many faults present in the area. Similarly in Huntington Canyon it is difficult to lay out panels until our short-term lease becomes a reality. At present, the property boundaries are scattered and erratic and long range

planning is impossible at this time. Because of these factors and the fact that there are no surface facilities located above the workings in both mines which would be seriously affected by subsidence, we feel that "three stations per panel" as stipulated in the guidelines are unnecessary. We have, however, endeavored to locate the stations close enough together to provide fully adequate monitoring of subsidence activity. Please note that a number of stations have been placed both inside and outside the angle of draw and that stations are concentrated along important streams.

3. Notification to surface owners is included.

4. Relevant rock mechanics and earth physics data will be submitted as it becomes available.

Hydrology, #2 Mine

1. Enclosed are seven copies of all information submitted.

2. Because a great share of the hydrology stations are located on Gordon Creek which is high, snow-bound and inaccessible at this time, a baseline survey report cannot be prepared. However, just as soon as the snow melts off sufficiently that our surveyors and laboratory technicians can reach the area, a complete baseline survey report will be prepared and submitted. This report will include stream flow rates and surface water quality. Presently there are no known acquifers in the area of the #2 Mine. Often water will be present in the mine when we cross a fault. However, this water usually dries up after a few weeks.

3. A map (seven copies) showing the surface facilities is enclosed. However, there are no monitoring stations near the surface facilities of the mine since there is no hydrology there.

4. As per your recommendation, we have relocated the North Fork Gordon Creek station down stream in order to monitor tributary run off from the lease into Gordon Creek. We have also included a station off the lease in Sec. 24 as per your recommendation.

5. Should any water wells or water producing exploration holes be drilled in the future, they shall be considered for conversion to ground water level and quality monitoring wells.

Hydrology, #4 Mine

1. Seven copies of all information are submitted.

2. Because of the heavy snow load in Little Bear Canyon, it will not be possible to obtain data for the baseline survey report until

later in the spring of the year. At that time a complete report will be submitted to your office. Enclosed herein are copies of the following which can be included as part of the baseline data needed to implement a monitoring plan:

a. A report prepared by the Water Resources Division of the U.S.G.S. outlining possible effects of mining on the water resources of the area in Huntington Canyon.

b. Appropriate sections on hydrology taken from the Environmental Analysis Report prepared by the U.S. Forest Service for the reopening of the Leamaster Mine.

c. Appropriate sections on hydrology taken from the Environmental Analysis Report prepared by the U.S. Forest Service on the short-term lease application presently pending with the U.S. Government located in the area of the Huntington Canyon #4 Mine.

This information, coupled with the Vaughn Hansen report which has already been submitted, combine to make a thorough baseline report which evaluates the potential impact on the water resources of the Mill Fork area of Huntington Canyon.

3. Enclosed are seven copies of the surface facilities for the #4 Mine.

4. In keeping with your recommendations, we have relocated the two monitoring stations in Mill Fork canyon, one just up stream from the western most extension of the access road and the other just up stream from Huntington Creek.

5. We feel at this time that sampling Huntington Creek is unnecessary insofar as sampling will be done on both Little Bear Creek and Mill Fork Creek, the only two streams entering Huntington Creek from the mining area. Huntington Creek lies well below the coal horizons and well off the coal companies property. Besides, the U.S. Government under the EPA is conducting extensive sampling on this creek.

6. See #4.

7. There are no water wells or water bearing exploration holes on or near the lease. Should future holes encounter water, they shall be considered for conversion to ground water level and quality monitoring wells.

Sincerely,

Dave Shaver
Chief Engineer

SUBSIDENCE PLAN
#4 Mine Lease Area

The enclosed plan is that which has been formally submitted to the U.S.G.S. for approval. However, at this time Swisher Coal Company is working in good faith with the U.S. Forest Service in coming up with a subsidence plan based on aerial survey interpretation. It is expected that once the Forest Service plan is drawn up Swisher Coal Company will participate in full. It is still too early to determine exactly what this plan will consist of since the entire area is now being studied by the experts to determine the best location of control points, station density, etc. However, additional information concerning the plan can be obtained through Bill Boley, Forest Engineer, Price, Utah. Once the plan is formally adopted a copy will be forwarded on to the U.S.G.S.

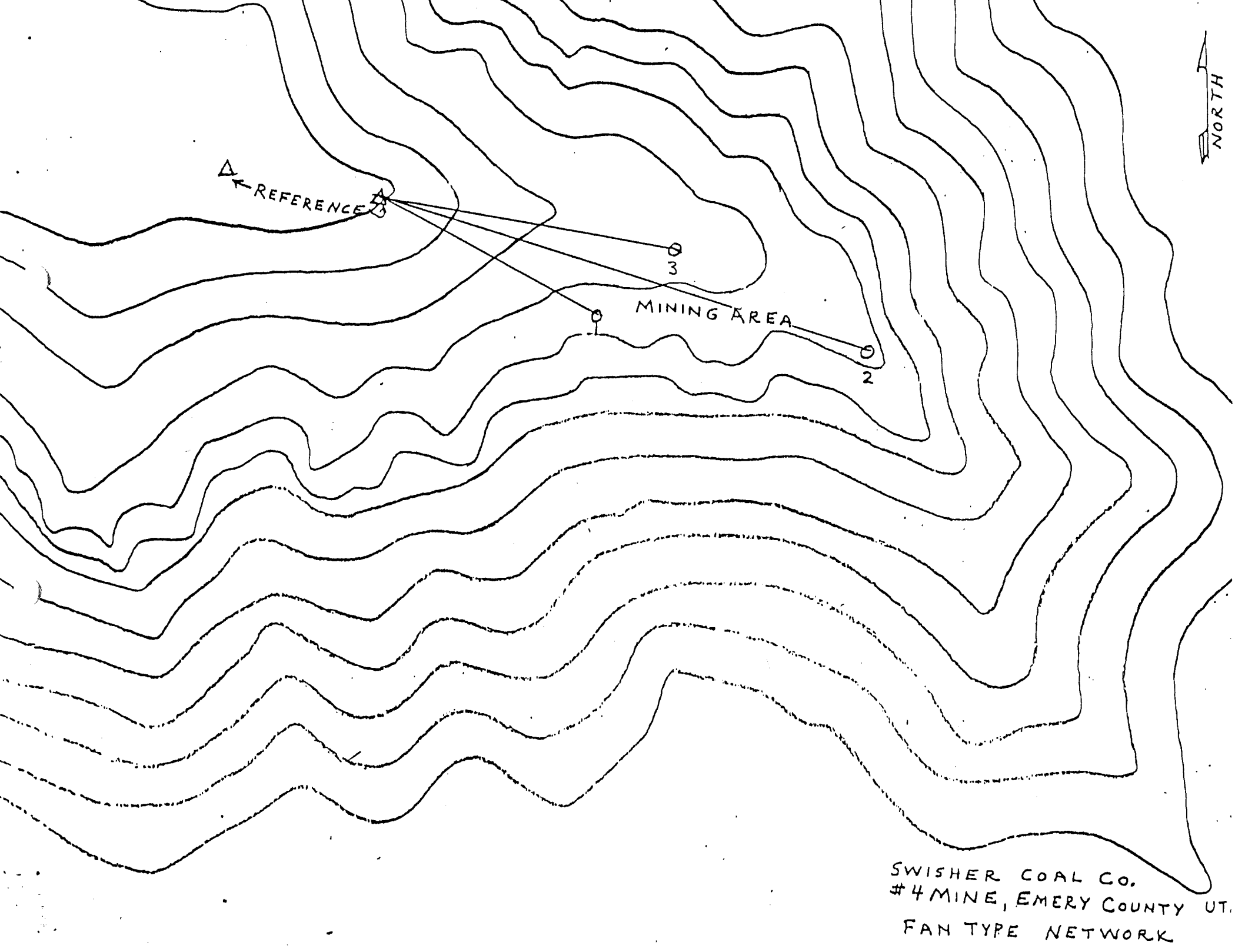
SWISHER COAL COMPANY
GORDON CREEK #2 MINE, HUNTINGTON CANYON #4 MINE

Subsidence monitoring program in accordance with 30 CFR 211.31 (c) as appendix to mining plan.

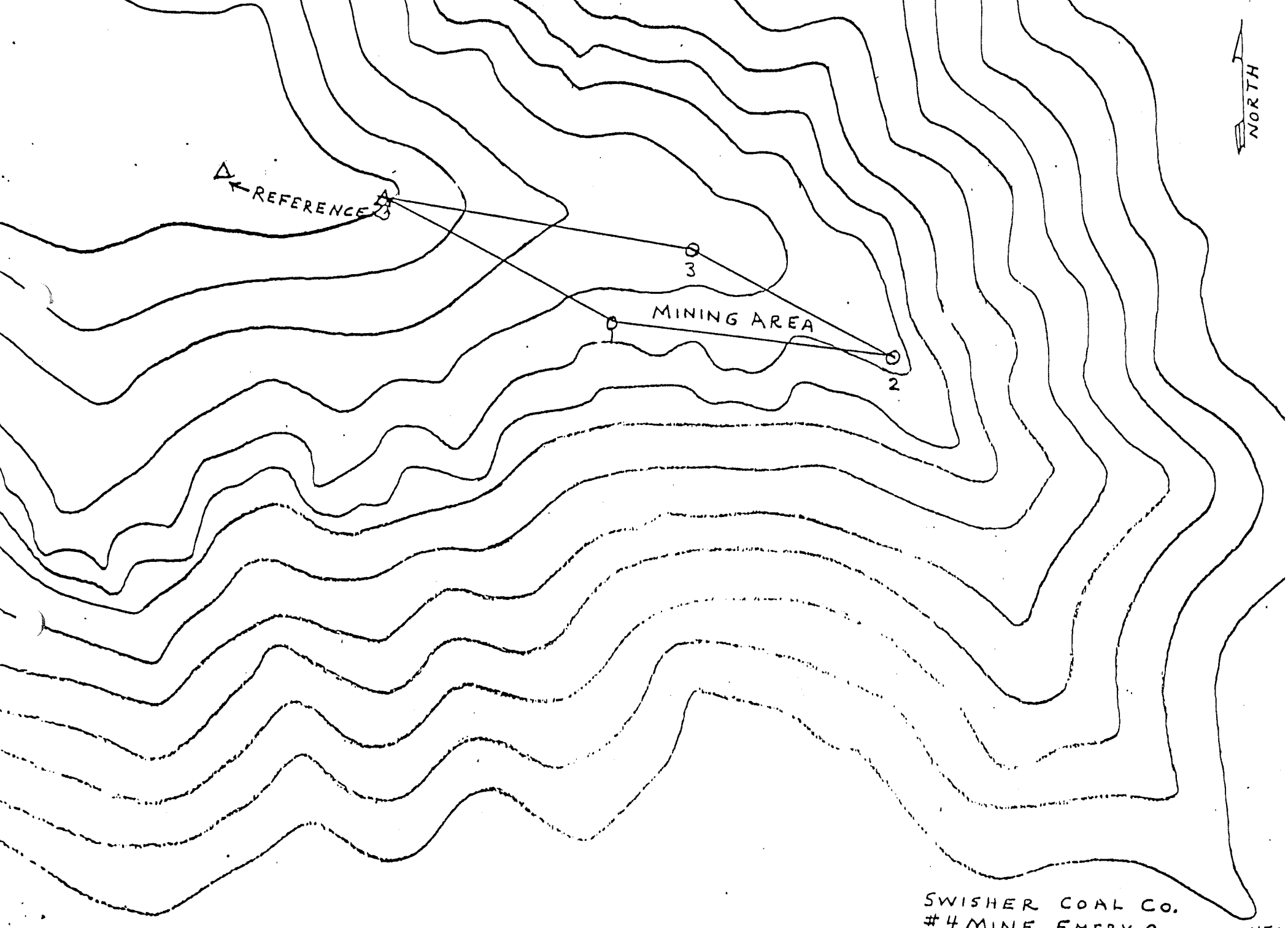
Location of Stations: At least one reference station must be tied to the existing surface and the underground survey and be located out of the area to be affected by underground mining. This station must have a reliable coordinate and elevation and should be set in concrete. Preferably, this station will be located in an easily accessible area. The first subsidence station should be placed as close as possible to the reference station and preferably at the same elevation to facilitate direct levels; however, vertical angle elevations may be used if the accuracy is within the 0.5'± limit. Since the subsidence shall be measured relative to the reference station, it is imperative that such station be located in a stable area, preferably in solid rock or in a concrete base of adequate size. All subsidence stations originally tied to this reference shall be monitored relative to this point and no other. The monuments will be suitably marked, dated and located on maps which also show underlying mine workings.

Subsidence Network: Either of two types of networks may be used separately or in conjunction (the loop type network and/or the fan type network). The loop type shall employ a closed loop survey, with the elevations of each subsidence station figured relative to each preceeding station, starting and ending with the reference point. The disadvantage of this system is that is necessitates travel to each station to establish an elevation and may be difficult to employ in the winter months. The fan type network is preferred but may not be feasible in some areas. This type would allow the monitoring of a number of stations from one reference point. This is an open ended survey but reliable results should be obtained through use of accurate instruments and consistency of methods. It is likely that as the mine grows in size, a combination of the two networks may be employed. It should also be noted that separate networks may also be employed, providing each has its own reference point out of the area affected by mining.

Monitoring Schedule: Stations shall be monitored for subsidence, rotation and tilting at six month intervals. During winter months, this schedule may not be possible due to snow conditions; however, a minimum of two subsidence measurements per year shall be taken as nearly on schedule as possible. A record shall be kept of each monitoring cycle and a copy of the results shall be submitted to the Area Mining Supervisor. Such record shall show the total subsidence (or heaving) rotation and tilt of each station relative to the original condition of the station.



SWISHER COAL CO.
#4 MINE, EMERY COUNTY UT.
FAN TYPE NETWORK



SWISHER COAL CO.
#4 MINE, EMERY COUNTY UTA
LOOP TYPE NETWORK