Sodium Carbonate Prospects of

McDERMOTT BASIN

SWEETWATER COUNTY

Wyoming.

By Christion Vrang

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SODIUM CARBONATE PROSPECTS OF McDERMOTT BASIN, SWEETWATER COUNTY, Wyoming.

GENERAL STATEMENT

On September 23rd., 24th., and 25th., in company with John R. McDermott, the writer proceeded to the McDermott Basin Area, immediately south of Eden Valley, Sweetwater County, Wyoming, for the purpose of conducting a geologic examination with special reference to the sodium carbonate possibilities of the area.

The area investigated involves sections 1 to 23 in Township 23 North, sections 31 to 36 in Township 24 North, Range 106 West, and sections 1, 12 and 13 in Township 23 North, Range 107 West.

The altitude of the McDermott Basin area ranges approximately from 6,500 to 6,700 feet and constitutes low flat-lying land grading gently up into surrounding low rolling topography with characteristic buttes and flat excarpments. A U. S. Federal Highway serves the region, No. 187, which connects Rock Springs, 34 miles away, with the area under discussion herewith.

One of the main purposes of the examination was to determine the most favorable locations for a 3-point assay of the

block of land in question, triangular in shape, by the core-drilling method.

There is no way to predetermine the existence of trona or sodium carbonate at depth, in the McDermott Basin, but the possibilities that such a deposit exists has been proven, first, by the drilling of the John Hay well, in the southeast corner of the SW1/4NE1/4 section 4, T. 23 N., R. 106 W., total depth 950 feet, which well encountered the trona deposit at 450 feet. Secondly, the formation, Green River, that has been previously prospected in the nearby area of Marston, Sweetwater County, and found to contain trona in commercial quantities, obtains in the McDermott Basin.

G E O L O G Y

The surface material or rocks in the area is made up of Green River beds in place, covered by hill wash and alluvium. It is not thought that the alluvium will exceed 50 feet in its greatest thickness any place in the basin. Therefore, after penetrating the alluvium in any core test the well will be in the Green River formation.

It is agreed by geologists familiar with the deposition of the Green River sediments that they occurred during a period of intense volcanic activity accounted for by the large percentage

of volcanic ash in the formation.

It is no doubt true that the conditions necessary for the deposition of sodium carbonate in the Green River Formation were inaugurated during that period of vulcanism in Green River time. Sodium brines, as occuring at various places in the Green River Formation outdrops have been known for a long time.

Since the trona in the John Hay well, in section 4, T. 23N., R. 106 W., was encountered at an altitude of 6,150 feet (6,600-450) and the trona at Marston is found at an altitude of approximately 5,000 feet it is seen that there is a difference of about 1,200 feet in altitude between the two.

Marston is 35 miles, in an air line, southwesterly from the McDermott Basin. The pre-existent sodium lake at McDermott Basin, 1200 feet higher in altitude, was not connected with the Marston deposit, but was probably sealed in a higher catchment, nearer to the sources of contributing sodium waters, the Wind River Mountains uplift (the Paleozoic continental divide).

Soda Flat occupies an irregular area in sections 5 and 6, a flat expanse about 35 feet lower in altitude than the government bench mark (6,601') at the quarter corner of sections 3 and 4. Soda Flat is suggestive, by its arid brightness, of either an alkali deposit or a surface manifestation of caustic efflorescence

that may have risen upward from the buried deposit. At any rate it is believed that the Soda Flat area should be tested first. If no trona is encountered within 600 feet of core drilling then it is recommended that an offset test be made to the John Hay well in south central section 4, 400 or 500 feet therefrom.

PROSPECTIVE CORE HOLES

A Brunton compass and Paulin altimeter were used in the preliminary survey to establish a control and to determine approximate elevations.

Three cedar posts, Nos. 1, 2 and 3, were set at points in Soda Flat to serve as a triangular control for prospective core hole drilling. Cedar post No. 1 is set in the NW portion of the SE 1/4 NW 1/4 of Section 5, where a test may be undertaken. Cedar Post No. 2 is set in the NE corner of the SE 1/4 NE 1/4 of Section 6. A test should be made 300 to 400 feet westerly of Cedar Post No. 2. Cedar Post No. 3 is set in the NW portion of the SW 1/4 SW 1/4 of Section 5. The test here should be made 1,400 or 1,500 feet due south so as to place the test hole in the NW 1/4 of Section 8.

If the triangular method of prospecting discloses a commercial deposit of trona then in that event it would appear, from the attitude of the formations observed, that the area of production might easily aggregate 3,000 to 4,000 acres with Soda

Flat approximately occupying the middle portion of the deposit, involving parts of sections 1 and 31 and all of section 6 to the northwest, ranging easterly through sections 5, 4 and 3 and southerly through sections 12, 7, 8, 9 and 10, and possibly further south into sections 13, 18 and 17.

TRANSPORTATIONS AND OPERATIONS

Mention may also be made of the availability of excellent transportation. The U.S. Highway No. 187 serves the McDermott Basin where sandy roads take off into various parts of the area.

As compared with the Marston area at the Westwaco operation, which encountered a deposit of trona at 1,500 to 1,600 feet, the development of McDermott Basin deposit, at 450 feet, should be many times more economical to develop. The latter lends itself, by reason of its shallower sodium carbonate deposit, to such expeditious forms of mining as slope entry methods. Most of the area contiguous to Soda Flat possesses this advantage of topographic relief.

There is a gravity flow to Soda Flat where the triangular core testing method recommended should be first applied. The John Hay well reached a depth of 950 feet where a copious flow of water was encountered which water resource assures an ample supply

for operations.

ADVANTAGE OF UNIT PLAN

The three point triangular method of locating the core holes is recommended also with a view towards serving the best interests of a unit plan for the entire block of acreage taken up in the McDermott Basin. Each core hole under a unit plan will constitute a test of the entire block.

It is believed that the U. S. Geological Survey, who supervises all exploration of the public domain, will be receptive to such a plan since, after leases have been granted, it will make for orderly development as well as eliminate costly duplicating operations.

The three recommended core hole tests will be located on three sodium prospecting permits fulfilling the present requirements of each of the three involved.

Respectfully Submitted,

/s/ Christion Vrang
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