TENERA
Environmental Services

July 2, 1988

Mr. Jeffrey Hahn, P.E.
Vice President
Ogden Projects, Inc.
1900 Powell Street, Suite 400
Emeryville, California 94608

Subject: Review of urban/rural classification for Ogden's Tulsa Facility vicinity.

Dear Jeff:

As we have discussed, the agreement on the identification of the immediate vicinity surrounding the Tulsa Facility as either rural or urban is necessary for TENERA to proceed with the EPA required air quality modeling analysis. It has been TENERA's professional opinion as well as the opinion of the Oklahoma Air Quality Service (OAQS) that the land use designation should be rural. This opinion is based on the general rural nature of the land which borders the facility to the north, west, and south, coupled with the knowledge that the land to the south-southwest of the facility represents undeveloped elevated terrain where the maximum air quality impacts from the project may reasonably be expected to occur.

EPA guidance on the identification of rural or urban land use is provided in the "Guidelines On Air Quality Models" document. The only reference source cited in this guidance on land use classification for air quality modeling purposes is a 1978 article by August H. Auer. August H. Auer is a Professor in the Department of Atmospheric Sciences at the University of Wyoming in Laramie. He can be reached at (307) 766-5163. I spoke with Professor Auer to solicit his opinion on the land use classification for the Tulsa facility. Professor Auer cautioned me that land use designation for air quality modeling purposes is principally a professional judgement call and that his work should not be viewed as exact criteria, i.e., urban land which is greater than 50 percent may be rural in an air quality modeling sense. He reminded me that his referenced article was published in 1978 (10 years ago) when little if any guidance existed in the selection of urban or rural dispersion coefficients. I specifically asked Professor Auer if refinery tank farms should be considered urban or rural, since the Tulsa Facility is bounded on two sides by large tank farms. (Generally, the 100 foot diameter tanks are located on 500 foot centers.) Professor Auer had recently consulted to Shell Oil and other refiners on a project to be located in St. Louis. In this instance, an existing tank farm of similar configuration was judged to be urban, principally because the area between the tanks was paved. This is not the case in Tulsa, and Professor Auer would consider the area of the tank farm contributing a rural effect to air movement and dispersion. Professor Auer also offered that since the principal wind direction is north/south then we should focus on the land use in the areas of probable air quality impact. He again stressed the need to temper any decision with good engineering judgement and more importantly common sense.

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In summary, Professor Auer was in complete agreement with OAQS's and TENERA's historical position that rural dispersion coefficients should be used in conducting air quality modeling assessments on Ogden's Tulsa facility.

I have attached reduced copies of a USGS quadrangle map of the vicinity surrounding the Tulsa facility. The map has been marked to identify the circular land use study area as defined by Auer (1978) as recommended by EPA's guidance document. The distinctive land uses are numbered and their respective area percentages are listed in Table 1. Please review this information with representatives of EPA Region 6 during your upcoming meeting in Dallas on July 6, 1988. It remains TENERA's position (as supported by OAQS and now Professor Auer) that EPA should approve of the use of rural dispersion coefficients in the air quality modeling assessment of Ogden's Tulsa facility.

An additional concern of TENERA's is the progress that is not being made by EPA in the release of final corrections to the ISC model code and possible confusions from early pre-releases of corrections. On Friday July 1, 1988, I received a transmittal from Jim Yarbrough of EPA Region 6 which provided June 20th corrections to a June 17th release by Russ Lee regarding corrections to ISC. I consider these releases very suspect, since, on June 22nd, I talked with Bruce Turner who was still waiting for OAQPS to present him with a copy of the revised ISC code which he could test, verify, and then approve for release.

I will be in my office on Wednesday, (July 6th) and may be reached if you have any questions.

Very truly yours,

/Thomas R. Arnold

Thomas R. Arnold
Manager, Atmospheric Services

Attachments

TENERA

TABLE 1

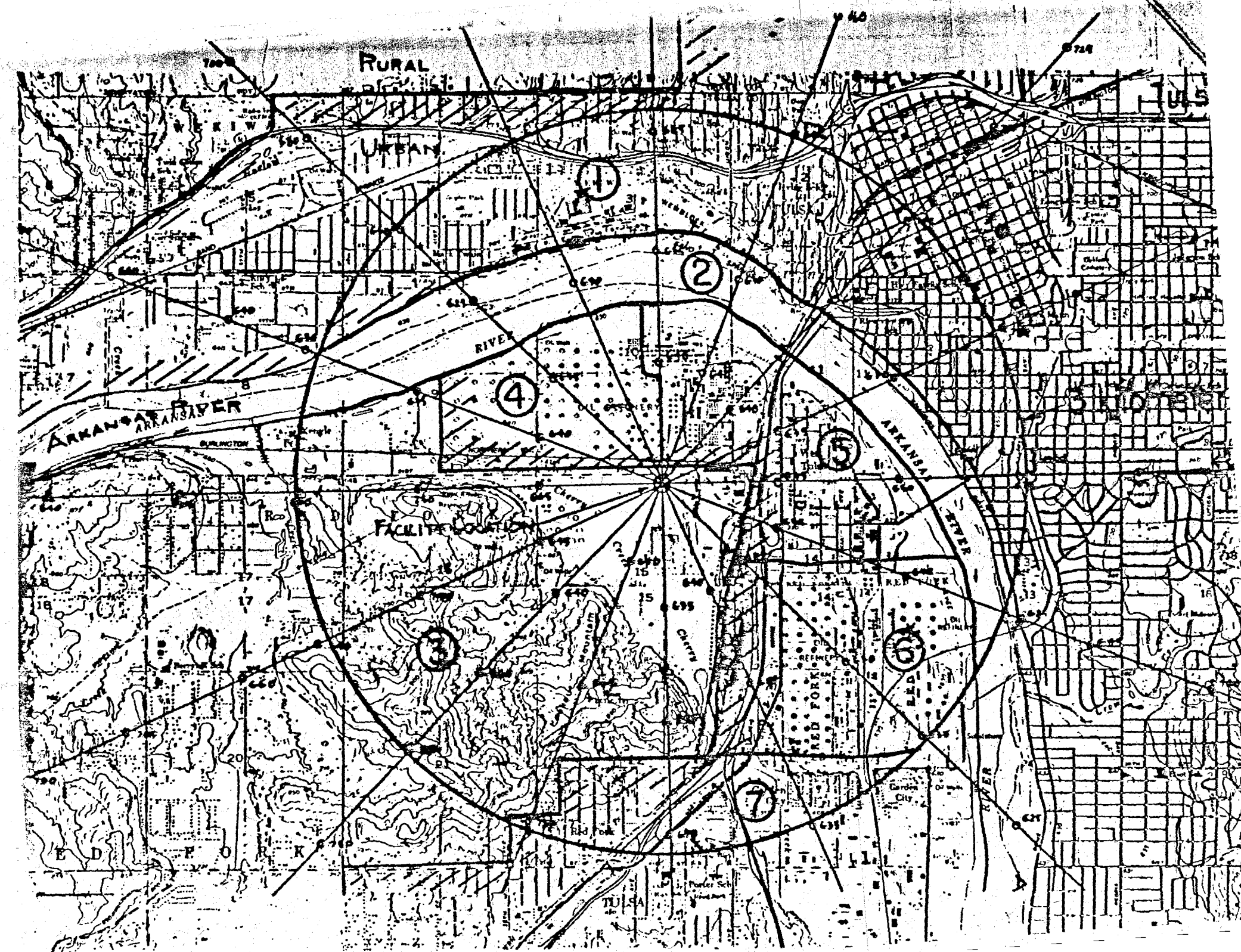
SUMMARY OF LAND USE AREAS

Area No.	Type	Size (% of Total)	Designation Rural	Urban
1	Suburban	21		X
2	River	13	X	
3	Agric/Hills	31	X	
4	Tank Farm	7	(1)	(1)
5	Industrial	11		X
6	Tank Farm	12	(1)	(1)
7	Suburban	6		X

(1) Tank farms may be considered rural or urban.

If only areas 2 & 3 are rural, then % rural = 44

If the tank farms (4&6) are also rural, then % rural = 63


RURAL
URBAN
1
2
3
4
5
6
7
ARKANSAS RIVER
ARKANSAS RIVER
RED FORK
RED FORK
TULSA
TULSA

TERA

CALCULATION SHEET

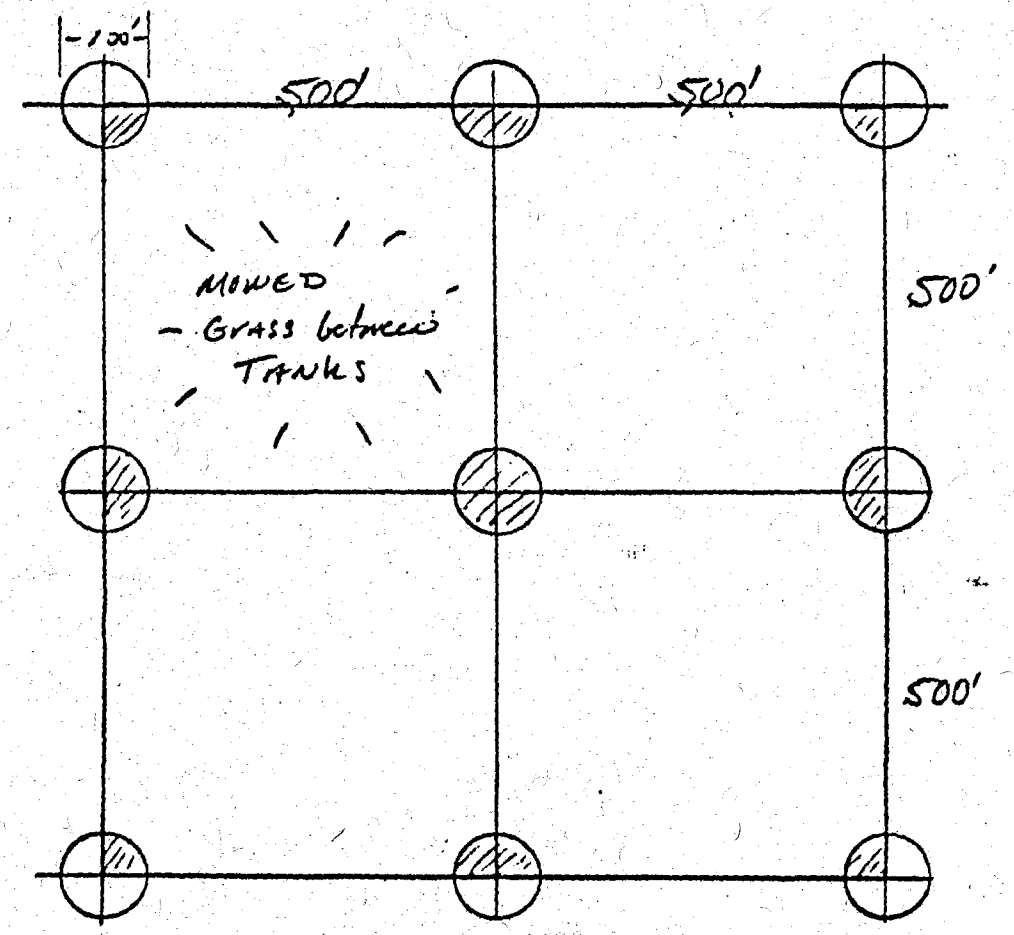
SIGNATURE T. Arnold DATE 6/30/88 CHECKED _____ DATE _____

PROJECT Ogden-Tulsa Units 1&2 JOB NO. 8051-01

SUBJECT Tank Farm Area SHEET _____ OF _____ SHEETS

PROBLEM: Determine tank area vs open area for tank farms North and East of the Tulsa Facility.

GIVEN: By scaling from aerial photograph, the average tank diameter is 100 ft. and the tanks are spaced on 500 ft centers.



Tank Area = $(4)(1/4) + (4)(1/2) + 1$ = 4 @ 100' diam

= $4 \times 7{,}850\ ft^2 = 31{,}400\ ft^2$

Total Area = $1{,}000' \times 1{,}000' = 1{,}000{,}000\ ft^2$

Tank Area / Total Area = $\frac{31{,}400}{1{,}000{,}000} = \underline{3\%}$