

# Suggested SGP Worksheet Changes – Background Paper

## Issue 1: Add an Alternative Measure for the 98% Utilization Goal

### Recommendation

At the October 29, 1999 National SGP Steering Group meeting agreement was reached to examine a second, alternative measure for the 98% utilization goal, and allow companies to select either method of tracking progress toward achieving this goal. At the recommendation of the Steering Group, a data subgroup recently reviewed and approved the alternative measure. The 98% utilization goal can now be achieved in one of two ways:

- (1) The 98% utilization goal is met when a facility is land disposing less than 2% of the metals it purchases (existing measurement).**
- (2) The 98% utilization goal is met when a facility reduces overall wastewater treatment sludge generation by 50% (dry weight basis) or more from their 1992 baseline year (*new additional measurement*).**

The proposed alternative measure can be used with existing Baseline, 1997 and 1998 data. Companies currently in the program will not need to submit additional information in order to calculate their progress. In fact, nearly all companies can received a score for this goal for 1998 using data that have already been submitted.

### Why is an Additional Measurement Needed?

An evaluation of the results show that approximately 65% to 70% of companies submitted insufficient data for calculating progress toward the 98% utilization goal, one of the seven “core” goals. This goal is achieved when “a facility is land-disposing less then 2% of the metals it purchases.”

- To calculate progress toward this goal requires a detailed and accurate material balance, the data for which is not routinely collected by companies and for most would increase sampling and analytical costs.
- There are no standard procedures for determining certain values used in the utilization goal calculation (e.g., metals used). Due to differences in procedures employed, some companies may achieve the goal with less effort than others.
- Another impact of this dilemma is that it will be difficult, if not impossible, to verify utilization data. Of the companies that have met the utilization goal, the majority achieves it by sending their sludge to a recycling facility. This off-site option is not available to many SGP participants or is prohibitively expensive.
- Unlike other numerical core goals, the utilization goal is only based on current year data, it does not account for baseline conditions and therefore does not encourage continuous improvement like the other goals.

- With the present measurement criterion, “incomplete” grades will be noted on report cards, and this goal may cause frustration among participants or potential participants that could result in reduced involvement in the program.

**The Proposed Alternative Measurement is Meaningful**

Of the three main pollution media generated by metal finishing companies, wastewater treatment sludge contains the most metal and, if left to their own accord, is the least likely reduction target for metal finishing companies. In fact, 1998 SGP data show that there was an increase in sludge generation over that reported in 1997.<sup>1</sup> Air emissions of metals are very low for most processes. Chromium emissions were an issue at one point, but these are now heavily regulated. Concentration standards and rules eliminating dilution regulate water emissions. As a result, the only area where significant utilization progress can be made is in the area of sludge reduction. Therefore, it makes sense to specifically target sludge as a means of encouraging improvements in metals utilization.

To achieve this level of sludge reduction, companies would need to significantly reduce drag-out by altering their rinsing methods and/or by instituting chemical recovery or other forms of pollution prevention. All of these methods will increase the percent of metal going onto the parts. De-watering of sludge does not count towards achievement of this target because sludge quantity is calculated on a dry weight basis.

The newly approved sludge reduction measure uses both baseline and current year data in a manner similar to the other numerical goals, which are “strategic and directional rather than prescriptive.” (*Magna Carta*). In this format, “continuous improvement” can be easily calculated and tracked.

**The Alternative Measurement Method is Achievable**

The following results taken from an analysis of 1998 worksheet data show what percentage of companies have achieved various sludge reduction levels. A 50% reduction value was suggested because it presents a challenging goal, but one that is achievable for most companies willing to implement pollution prevention.

**Table 1. Results from 1998 Worksheets Showing Percentages of Companies Meeting Various Sludge Reduction Levels**

<b>Overall Reductions in Sludge Generation</b>	<b>Percentage of Companies that have achieved this level of Reduction in 1998</b>
20% Reduction of Sludge	56.3% of SGP companies
25% Reduction of Sludge	53.5% of SGP companies
30% Reduction of Sludge	47.9% of SGP companies
40% Reduction of Sludge	40.8% of SGP companies
<b>50% Reduction of Sludge</b>	<b>29.6% of SGP companies</b>
60% Reduction of Sludge	26.8% of SGP companies
75% Reduction of Sludge	22.5% of SGP companies

<sup>1</sup> While water use, the quantity of sludge shipped to landfills and other SGP metrics showed declines, the quantity of sludge generated actually increased from 1997 to 1998, by 17% (for companies using dollar sales as a normalizing factor).

The above results suggest that the level of difficulty in reducing sludge generation rises significantly above the 40% reduction mark. The small difference between the 50% to 75% levels is because some companies have already achieved zero discharge or use ion exchange canisters and therefore do not generate any wastewater treatment sludge (baseline or 1992). These companies, which represent about half of those achieving the 50% level, are automatically given a reduction score of 100%. Therefore, the 50% level appears to be a challenging level for most companies that generate sludge, but one that is achievable.

**Table 2. Percentages of Companies that have Achieved Goals or are Unable to Calculate Progress**

<b>Goal</b>	<b>Achieved Goal, %</b>	<b>Unable to Calculate Progress, %</b>
50% Reduction in Water Use	30.2	3.3
25% Reduction in Energy Use	23.5	12.6
50% reduction in land disposal of hazardous sludges and an overall reduction in sludge generation	59.7	8.4
50% reduction in metals emissions to water	41.1	11.8
<b>98% metals utilization (existing measure only)</b>	<b>25.2</b>	<b>68.9</b>
<b>98% metals utilization (new measure only)</b>	<b>32.3</b>	<b>8.4</b>
<b>98% metals utilization (both measures)</b>	<b>46.5</b>	<b>8.4</b>
90% Reduction in Organics	68.9	0
Reduction in human exposure to toxic materials in the facility and the surrounding community	0.8	0

When the 50% sludge reduction method is applied in addition to the “less than 2% land-disposed” method, the total percentage of companies achieving the 98% utilization goal is estimated to be 46.5%. This percentage of achievement is consistent with other core goals, as shown above.

## **Issue 2: Getting Useful Economic Cost & Benefit Data**

### **Recommendation**

Also reviewed and adopted by the data subgroup were changes to the worksheet cost saving questions. Simplified "unit" cost questions were substituted that will be used to track trends in resource and lab sample costs, as well as the annual burden hours for certain reports. The 1999 worksheet (excerpt below) will now ask questions like how much a facility paid per thousand gallons of water, how much for a pound of sludge sent to a hazardous waste landfill, and the cost for their lab analyses of wastewater and sludge samples during the year.

**1999 Worksheet Cost Questions:**

In **1999**, how much did you pay for -

- one thousand gallons of water: \_\_\_\_\_ \$/1000 gal. (include water and sewer charges)
- one unit of electricity/gas/oil: \_\_\_\_\_ \$/kwh, therms, or gal. (please circle unit of measure used).
- one pound of sludge sent to a hazardous waste landfill: \_\_\_\_\_ \$/lb. (include transportation, disposal/recycle)

In **1999**, how much did you pay for -

- laboratory analysis of wastewater and sludge samples: \_\_\_\_\_ \$/year

In **1999**, how long did it take you to fill out -

- all Form Rs (Toxics Release Inventory): \_\_\_\_\_ hrs.
- all Self-monitoring Reports (SMR): \_\_\_\_\_ hrs.
- all Hazardous Waste Manifests: \_\_\_\_\_ hrs.
- all other environmental reports (name): \_\_\_\_\_ , \_\_\_\_\_ hrs.

These should be easy to complete, and subsequent NCMS analysis should be able to calculate trends in economic performance and compliance costs.

**Why revise the cost questions?**

A review of cost savings data from returned SGP worksheets (below) indicates that participants were having difficulty accurately calculating the economic benefits from participating in this program or receiving benefits from changes in government practices. The difficulty stems from imprecise language on some basic terms (capital costs, monitoring v.s. environmental protection equipment) and references to what could be daunting environmental cost accounting principles.

Revising the worksheet with better examples, definitions, and instructions would lengthen the form (presently 7 pages) and probably further discourage people who want to complete the form.

**Question 8: Is the facility able to estimate compliance costs that did not contribute to environmental protection?**

Out of 135 responses to 1998 worksheets:

- Yes: 65 (2 of those did not enter any cost data)
- No: 70
- 14 (10.3%) correctly provided capital costs
- 7 (5.2%) correctly provided other costs

**Question 9: Were cost savings from environmental improvements realized this year?**

Out of 135 responses to 1998 worksheets:

- Yes: 22 (16.3%) (2 of those did not enter any savings data)
- No: 29 (21.4%)
- Don't know/unable to calculate: 84 (62.2%)