George Mason University School of Law
Examination Cover Sheet

Antitrust (Law 156-001/002)
Professor Aviram
Spring Semester 2004
Number of Pages: 4 (including this page)
Number of Questions in Exam: 3
Time Allotted: 3 hours

Exam Instructions

1. **Permissible material**: This is an open book exam. You may use any materials
    you want, whether in hardcopy or electronic format. You may not communicate
    with anyone about the exam until it is over.
2. **Length limit**:
    a. If you type the exam on a computer, it should not exceed 2,000 words. If
        you handwrite your exam, it should not exceed 200 lines.
    b. **For every 50 words (typed exams) / 5 lines (handwritten exams) in
        excess of the length limit, two points will be taken off the exam's raw
        score**.
    c. If you type your exam, please write at the end of it the word count (e.g.,
        "Word Count: 1,489 words"). If you handwrite your exam, please do a
        similar line count. The words/line used in reporting the word/line count
        are not calculated in the word/line count itself. **Failure to do so will result
        in a reduction of one point from the raw score**.
3. **Legibility**: If you handwrite your exam, please write legibly. I will do my best to
    read your handwriting, but will have to disregard writing that is too small to read
    or otherwise illegible.
4. **Writing the exam**:
    a. You should give appropriate case and statutory authority for your answers,
        stating how each cited case/statutory provision relates to your answer.
    b. Length limit permitting, answer all issues that arise from the fact pattern,
        even if your conclusion on one of the issues is dispositive to other issues.
    c. If you think a question is unclear or cannot be decided without additional
        facts, state clearly what facts you believe to be necessary to answer the
        question. Length limit permitting, try to discuss the applicable rule and
        result for the various possible fact patterns.
5. **"Fact" pattern is fiction**: The "facts" presented in the exam were constructed for
    an educational purpose, and were not intended to refer to or inform about any real
    person or event.

Good Luck!

The Exam Fact Pattern

Mud – therapeutic mud – is big business. Therapeutic mud is used for recreational and pseudo-medicinal uses. While never proven scientifically, high-end therapeutic mud has been claimed to remove stress, cure baldness, cancer and leprosy. The global revenue of the mud industry has increased by an average of 15% annually over the past decade. The mud industry mines high-quality earth and combines it with other materials to create various types of branded mud. It also creates sophisticated systems called Mud Delivery Systems (MDSs) that preserve the mud for long durations and ensure its flow and proper temperature for mud baths. MDSs require electricity and mud to operate. Information on the relevant segments of the mud industry follows.

1. **Mud mining**: The first step in producing therapeutic mud is mining raw earth of suitable quality. Luckily, suitable earth is plentiful, and its extraction is not difficult. The mud mining segment is highly competitive, with over 50 firms selling raw earth to mud-producing firms. The largest mud-mining firm has a market share of 4%.

2. **Mud production:** Raw earth is made into mud by processing it with various chemicals and fragrances. Mud production is dominated by the 'big four' firms: **Grime Enterprises** (GE), **Mother Earth Corp**. (MEC), **United Mud Industries** (UMI) and **Pig Pen, Inc**. (PPI). Last year, mud producers sold 10,000 tons of mud. Minimum efficient scale in mud production is about 100 tons. Market shares in mud production are:

	Mkt. share by tons	Mkt. share by sales ($)
GE	36%	21%
MEC	23%	17%
UMI	22%	37%
PPI	14%	22%

Mud branding is very important in the U.S. market. The big four firms produce a variety of mud brands, which they advertise extensively. Consumers seem to have strong preferences and loyalties to certain brands over others. Prices of different mud brands vary widely according to their perceived quality. The process for creating each brand is patented and the brand is produced solely by the patent holder.

The top ten brands are (in brackets – firm, market share by tons, market share by sales): Common Pleasures (GE, 15%, 8%), Patrician (MEC, 12%, 8%), Glory (GE, 10%, 6%), Delight (PPI, 9%, 14%), Tranquility (UMI, 9%, 16%), Harmony (UMI, 7%, 12%), Sinful (MEC, 7%, 5%), Treat (GE, 6%, 3%), Comfort (UMI, 6%, 9%), Fudge (PPI, 5%, 8%).

Research indicates that customers rank mud quality as follows: The highest-end brands are PPI's Fudge and UMI's Tranquility. UMI's Harmony and PPI's Delight are perceived to be almost as good. UMI's Comfort is generally perceived as better than all but the four abovementioned brands. MEC's Patrician and GE's Glory are close competitors, and are considered the next tier of brands. At the low-end are MEC's Sinful and GE's Common Pleasures and Treat.

3. **MDS manufacturing**: Mud delivery systems are systems that store several hundred mud baths' worth of mud, and convey it to the mud baths at precisely the correct temperature and flow. There systems are very expensive, with prices ranging from $600,000 for a low-end model to over $8 million for the high-end products. Generally, they are purchased by businesses that offer mud baths (e.g., high-end spas, health clubs, etc.) though a few wealthy individuals purchase a system for their private use. An MDS's lifetime is about 15 years. Any given MDS can use any brand of mud. Switching brands only requires cleaning the MDS, which takes about six hours of work and very little additional cost.

The design and construction of MDSs require mechanical engineering acumen, but any mechanical engineer possesses sufficient skill to do so. The required materials are easy to obtain and almost any business involved in mechanical repair has the facilities to construct an MDS. Two firms have permanent presence in the MDS manufacturing segment: **Muddy Machines, Ltd**. (MML) and **Mean Machines Corp**. (MMC). MML has a 45% share of total MDS sales and MMC has a 40% share. About twenty additional firms occasionally build an MDS as a special order (these firms have been known to build MDSs of all types, from low- to high-end). The minimum efficient scale in producing MDSs is one unit (i.e., one MDS).

4. **Mud distribution**: Both mud manufacturers and MDS manufacturers sell their products to distributors. There are about 60 mud distributors in the U.S., and most operate within a single state. Several distributors serve large cities, but smaller cities and rural areas are served by only one distributor. None of the distributors are owned by mud producers or MDS producers. Most distributors carry all or nearly all mud brands.

Our story beings here…

I. In April 2003, at the annual meeting of the Association of American Mud Producers, GE's CEO lectured on mud distribution. She said that many mud distributors have market power in their geographical markets and raise prices to exploit this market power. This results in lower sales, which harm mud producers. The solution, she said, is that each of the big four firms limit distributors' retail price. MEC's CEO, who spoke next, said that he plans to require MEC's distributors to set their retail prices no higher than 5% above the wholesale price (i.e., the price that MEC sells the mud to the distributors). UMI's CEO said that a 5% margin sounds reasonable to him. PPI's CEO, concluding the meeting, said that he is happy to see that his rivals are responsible, reasonable and collegial.

Within a month each of the big four firms renegotiated agreements with distributors to include a clause prohibiting the distributor from selling mud at a price more that 5% above the wholesale price.

Therapeutic Supplies, Inc. (TSI), a therapeutic mud distributor, sued the big four firms alleging that the big four's imposition of maximum retail prices violated antitrust laws. Besides the facts mentioned above, TSI presented statistical evidence that wholesale mud prices were 27% higher in April 2004 than in April 2003. **Analyze TSI's suit (ignoring issues of standing and antitrust injury)**.


II. GE signed an agreement with PPI, under which both companies will merge into a single firm that will be called **Mud One Corp**. The next day PPI announced a tender offer for all of the shares of Muddy Machines, Ltd. The offer was scheduled to take place before the merger is executed, so if both the merger and the tender offer take place, Mud One Corp. will include the three firms (GE, PPI & MML).

The relevant parties file premerger notification forms with the Department of Justice and the Federal Trade Commission. **As the FTC, analyze whether you should challenge these transactions**.

III. For business reasons not related to antitrust concerns, GE, PPI and MML scrap their merger plans. Soon after the merger agreement is revoked, PPI & MML sign an agreement under which they both promise not to sell mud and MDSs to distributors. Instead, they will sell MML's MDSs directly to customers, coupled with a 15-year contract to supply all the mud used by the machine (at a price determined at the time of purchase of the MDS, and adjusted for inflation). Both PPI & MML promise not to sell their products except in this bundle.

The Antitrust Division of the Department of Justice sues PPI and MML, alleging that the agreement between them violated antitrust laws. **Analyze the DoJ's suit**.

Antitrust (156-001/002)
Memo on the Final Exam
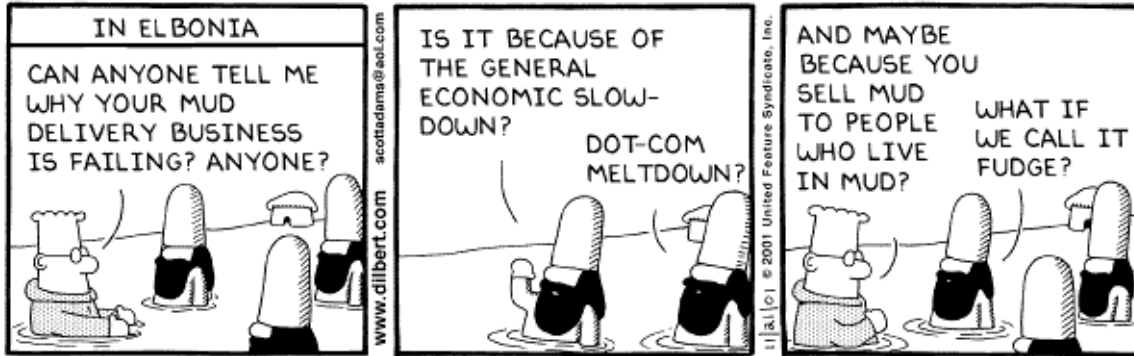
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Many of you came out of the exam with the impression that it was hard. It was (or at least I tried to make it so). Since grading is done on a curve, my concern was not about making the exam too hard, because the yardstick – i.e., the standard against which exams are measured – is not a raw score of 100, but the raw score of the top 5% of exams. On the other hand, precisely because the exam is graded on a curve, I was concerned about making the exam too easy. An exam that is too easy will result in most students getting raw scores of close to 100. This means that raw scores are bunched very closely together, not allowing to differentiate between A and B exams. I think that in such a situation grades would be even more arbitrary than they inevitably are. Thus, my aim was to write a difficult exam, though I hope a fair one.

Grades:

Raw scores were calculated out of a total of 100 points – 30 for part I, 35 for part II, and 35 for part III. Below are the average, median, lowest and highest grades for the exam and for each question separately:

	Average	Median	Lowest	Highest
Entire Exam	37.09	36	18	71
Part I (30%)	12.87	12	2	26
Part II (35%)	13.49	14	5	29
Part III (35%)	10.82	11	0	22

Letter grades were given based on the percentile ranking of the exam's total raw score, as explained in the exam preparation class (i.e., the letter grade depended not on the absolute raw score of an exam, but on the relative ranking of a given exam's raw score compared to all other exams' raw scores).

Below I will discuss the answers to the exam questions. These are answers, but not the only answers; some students received credit for very different, but well-explained and correct responses. Also, the memo is not written as an exam should be – it is longer that an exam should be, because I chose to emphasize in this memo some aspects that seemed worth clarifying (while addressing only briefly other aspects that seemed to be clear).

I. **Therapeutic Supplies, Inc.'s Suit**

TSI can make two arguments: (i) Each mud producer's imposition of a maximum RPM violated Sherman 1; (ii) The big four firms violated Sherman 1 by agreeing to impose a uniform retail price cap of 5% above wholesale prices.

Sherman 1 has three elements: (a) agreement; (b) competitive effect (unreasonable restraint on trade); (c) interstate commerce. Element (c) appears to be satisfied, since mud is distributed in many (possibly all) states and therefore it is likely that mud is produced in one state and sold in another. The other two elements need to be analyzed separately for each argument.

1. <u>Vertical restraint</u> [10%]

(a) The agreement element is satisfied by the distribution contracts between individual mud producers and individual distributors. The fact that a distributor is harmed by the restraint does not preclude it from being a party to it (e.g., in *State Oil*, the agreement that Khan alleged to violate Sherman 1 was the distribution agreement to which Kahn was party). Some exams analyzed a potential violation of Sherman 2 as a result of the RPM. For this RPM to be a Sherman 2 violation, the result of the RPM should be creating (in the case of an attempt to monopolize) or maintaining and enhancing monopoly power. The RPM does not create or maintain market power in the mud production market (in fact, by reducing the distributors ability to restrict output, it may expand demand for mud and make the market more attractive for entrants). It also does not monopolize the distribution market, since none of the big four participate in the distribution market (at least until Question 3). Thus, no credit was given for discussing Sherman 2 in this question.

(b) Competitive Effect:

> (i) Per se: Under *State Oil*, maximum RPM is not per se illegal (reversing *Albrecht*);
> (ii) RoR: Competitive harm – Maximum RPM may be used to fix de facto minimum prices. Under this argument, the mud producer is the hub in a "hub & spoke" cartel (e.g., *Toys R Us*); it enforces on the mud distributors a specific retail price, but disguises it by calling it a maximum price. This argument is not plausible in the circumstances of the industry – generally, mud producers would not want to assist a downstream cartel, because it would raise prices and reduce retail mud sales, reducing in turn the producers' sales to distributors. For a 'hub & spoke' cartel to be plausible, the mud producer should benefit from policing the cartel. Examples of such benefits include: (1) evading rate regulation (not relevant here, since wholesale prices of mud are not regulated); (2) facilitating collusion among mud producers (not relevant here, since each individual distributor seems too small to be a cartel-disrupting 'power buyer' or to police a cartel among the big four producers); (3) excluding other mud producers or making their entry or expansion more difficult (again unlikely here, both because

individual distributors seems too small to be able to exclude mud producers and because the big four firms seem to coordinate the RPMs, making it unlikely that the RPMs are intended to be predatory.

Efficiencies: Maximum RPM may increase output by preventing a distributor that has market power from charging above-competitive prices. This is in the producers' interest, since higher retail prices reduce producers' sales (see above). In this case, the argument seems plausible regarding most distributors, since smaller cities and rural areas are served by only one distributor. Even in large cities there are only "several" distributors. If their number is small and market conditions support collusion, they may engage in oligopoly prices unless a maximum RPM prevents them from doing so.

Conclusion: It seems to me that under RoR (which is the correct standard of analysis here) each individual RPM did not violate Sherman 1.

2. Horizontal restraint [20%]

(a) Here the agreement element is not obvious. There is clearly conscious parallelism – all big four firms impose the same maximum RPM within a month, and all know of the others' behavior. *Interstate Circuit* came close to presuming an agreement when conscious parallelism exists, but *Theatre Enterprises* stated that such a presumption is wrong when firms have independent, pro-competitive reasons for the action that happens to be parallel (in this case, restricting distributors' market power is an independent reason of this sort). *HFCS* states that an agreement involving actual, verbalized communication must be proved. *HFCS* also sets the framework for proof:

(i)   Economic evidence that the market structure made collusion feasible: Supporting collusion: four firms have a market share of 95% (by tons) or 97% (by $); few close substitutes to therapeutic mud; relatively small purchasers (no "power buyers"); standardized product features (mud is mud, no other 'features' are sold with the mud); firm homogeneity (until the Mud One merger, none of the firms is vertically integrated), and sales are composed of frequent small orders rather than a few large orders (making the expected profit from cheating on the cartel in an individual transaction low). Indicating collusion is less likely: products are differentiated (not homogeneous).

(ii) Economic evidence that the market behaved in a non-competitive manner: Switch to maximum RPM was made by all four firms within one month of the issue coming up in the trade association meeting; all four firms set the same retail margin (no evidence of a reason why 5% would be the obvious margin for each firm individually). The evidence on the 27% increase in wholesale prices of mud is of little evidentiary value. The price increase may have been due to many reasons other than collusion (e.g., increase in price of raw materials). An econometrically-sound regression analysis is needed to show that the price increase correlates with the period of collusion even after factoring out effects of all other likely reasons for price fluctuation.

(iii)   Non-economic evidence suggesting that defendants agreed not to compete: The subject was discussed explicitly in the trade association meeting, mentioning not only the concept of a maximum RPM but the specific margin that GE intended to set. All four firms set the same retail margin that was mentioned in the meeting. The CEOs referred to the RPM and to the 5% margin as reasonable, implying to the others that they would go along with imposing a 5% retail margin cap. The reference to rivals' collegiality, while not indicative of agreement in itself, may support stronger evidence in reaching such inference (as it did in *HFCS*).

Conclusion: The non-economic evidence is very strong, and almost reaches the level of express agreement. The economic evidence is somewhat supportive of an inference of agreement. In itself the economic evidence may not have been enough to infer an agreement, but it supports the non-economic evidence sufficiently, in my view, to allow an inference of agreement.

(b) Competitive effect:

(i)   Is the agreement per se illegal? The only relevant category is price fixing. *Socony-Vacuum* deemed per se illegal price fixing any agreement "formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price". It does not matter that a specific price was not set, but rather a formula. Under *Maricopa County*, setting maximum prices is also per se illegal. However, price fixing typically applies to fixing the price at which the colluding parties sell (or buy). However, the RPM applies not to the wholesale price (the price charged by the colluding parties), but to the retail price (which is not a price they charge). *Catalano* found per se illegal price fixing when firms fixed non-price terms over which they competed (short-term credit). The big four mud producers may compete on whether they impose RPMs, and even if they all impose them, they may compete over the retail margins they allow. In *Brown* the court refused to apply the per se standard to an agreement among universities not to compete over financial aid to students. However, that decision seems to result from the special nature of the non-profit education sector, and is therefore likely irrelevant to the mud industry. Another way to argue for per se illegality would be to view the agreement as a group boycott. If the boycott lacks any pro-competitive justification, it would be per se illegal under *Klor's*. The pro-competitive effect of mitigating distributors' market power is not ancillary to the group boycott, since each distributor could have imposed the RPM independently, so *Klor's* is likely to apply. Thus, I would lean towards finding the agreement per se illegal.

(ii)   Regardless of your decision as to the application of per se analysis, you should also analyze under the RoR. Competitive effect: As mentioned above, eliminating competition over whether to impose an RPM and over the size of the permitted retail margin makes it easier to collude. As analyzed in I.2.a(i),

the market it susceptible to collusion (though the differentiation between products makes it somewhat less so than a homogenous market with a C_4 of 97%). Efficiencies: You may reflexively think of the efficiencies of maximum RPMs mentioned above as applicable here, but they are not. The allegation here relates to an alleged agreement between the big four firms to fix the retail margin. It would be a relevant efficiency if for some reason it would be better for consumers that mud producers coordinated on the retail margins they require. I cannot think of any such efficiency. Thus, the agreement seems to be a naked restraint. With some evidence of likely competitive harm and no evidence of efficiencies, a RoR analysis seems to indicate that the agreement among the big four firms violated Sherman 1.

Conclusion: I believe that a court would find that an agreement between the big four firms existed and that is violated Sherman 1 under both per se and RoR analysis.

II. **The Mud One Corp. Merger**

Mud one includes 2 mergers: A horizontal merger between GE and PPI (or, under another market definition, a conglomerate merger between the two firms), and a vertical merger between GE-PPI and MML.

1. <u>Horizontal Merger</u> [15%]

Analysis will be according to the 1992 Merger Guidelines. The failing firm doctrine is irrelevant in this case.

(a) Prima facie case:

(i) Market Definitions: The market seems to be therapeutic mud. There may be separate high-end and low-end markets. The test would be the degree of cross-elasticity of demand (*Du Pont*), and since this is a horizontal merger, the SSNIP methodology will apply (Guidelines §1.1): if a single firm produced all of the high-end mud, would it find it profitable to raise prices 5% above the competitive level? There is insufficient evidence to explore this. If there are separate high-end and low-end market, this merger is not horizontal, since PPI produces exclusively at the high end (Fudge & Delight brands), while GE produces the low end (Treat, Common Pleasures & Glory brands). Under such a market definition, we have a conglomerate merger (see II.2).

(ii) Market shares: We need to decide which measurement unit is more appropriate for measuring market shares: sales (in dollars) or units sold (in tons). There is significant brand differentiation and prices of different brands vary widely. Following *Du Pont*, this suggests that we should measure shares by tons, not by dollars.

(iii)   Concentration: Using the market share figures for tons, pre-merger HHI is 2,505. You can use the shortcut to find delta: 2 x 36 x 14 = 1,008. So, post-merger HHI is 3,513 (i.e., a highly concentrated market). This places us squarely in the guidelines' "presumed illegal" rubric. Note that in this case using dollars as the metric would not change figures by much – post-merger HHI would be 3,507 and delta would be 924; but it would be a merger of # 2 & # 3 making them only slightly larger than #1, rather than a merger of #1 and #4 becoming a company twice as large as #2).

(b) Anti-competitive effects:

(i)   Unilateral effects: Under §2.21 of the guidelines, a merger in a differentiated products market (such as therapeutic mud) is likely to raise concerns regarding unilateral effects if: (1) Concentration levels are outside of the HHI safe harbors (they are in this case, see (a)(iii) above); (2) the merging firms' combined market share $\geq$ 35% (in this case Mud One's market share would be 50% (by tons) or 43% (by $)); (3) A significant share of one firm's customers regard the other merging firm as their second choice (not in this case – given the data on customers' perceptions of mud brands' quality, UMI is PPI's most direct rival and MEC is GE's most direct rival); (4) Other firms are unlikely to reposition themselves to replace lost competition – there is no clear information about this, but since brands are costly to establish, anyone but UMI may lack the reputation for quality mud that is needed to launch a successful high-end mud brand. Because element (3) was not satisfied, unilateral effects are not a major concern resulting from the merger.

(ii)   Coordinated effects: The most important factor affecting coordinated interaction is market concentration. Here, C_4 is either 95% or 97% - an extremely high percentage. HHI figures similarly indicate very high concentration. These figures indicate that if the four firms can coordinate their actions, they could act as a monopolist (unless barriers to entry, analyzed below, are very low).

Whether the four firms can coordinate their actions depends on costs of agreeing on terms of coordination, costs of detecting deviation and costs of punishing these deviations. We evaluated the susceptibility of the market to collusion above (I.2.a(i)). Despite product differentiation, it seems that collusion is not very difficult in this market.

Conclusion: The merger is likely to raise concerns of coordinated effects, but probably not of unilateral effects.

(c) Entry: We don't have much information about barriers to entry. The mud mining industry is competitive, so acquiring raw earth should not be difficult. Also, MES is very low (1% of current demand). However, mud brands are patented and produced solely by the patent holder, so there is no intra-brand competition and creating a new brand

requires (potentially expensive) R&D. Perhaps more significantly, the market is branded and significant advertising expenditures are required to create brand recognition and acceptance. This high sunk cost may deter potential entrants.

You can reasonably decide either way about entry sufficiency. More information the extent of attempted entry in the past would be helpful. Given that the big four firms have a 95-97% share, the output restriction will be significant, so entry will have to be significant (for example, entrants would need to replace restricted output in both the high and the low-end of the market). This makes me lean towards considering sufficient entry unlikely.

(d) Efficiencies: We are not told what efficiencies the parties claim from the merger. Since MES is 1% of current demand and both firms are much larger, it seems that the merger does not exploit economies of scale. However, because GE operates in the low-end of the market and PPI – in the high end, the merger may create efficiencies if there are economies of scope in offering both high- and low-end mud together. For example, if a spa offers both low- and high-end baths to customers, it may purchase high-and low end brands. The merger creates a one-stop shop for such spas.

Conclusion: There is a strong prima facie case and indications of likely coordinated effects from the merger. Entry is likely to be insufficient to prevent those effects, and efficiencies (such as economies of scope) do not seem so great that they rebut the prima facie case. Thus, the government should probably challenge the horizontal aspect of the merger.

2. Conglomerate Merger [5%]

This is a minor point in the analysis, related to the GE-PPI merger but analyzed under §4.1 of the 1984 Merger Guidelines rather than under the 1992 Horizontal Merger Guidelines. If there are separate markets for high-end and low-end mud (see II.1.a(i)), then GE and PPI operate in different markets and the Horizontal Merger Guidelines do not apply. However, each might be considered an actual or potential competitor in the other's market.

§4.1 of the 1984 Merger Guidelines examines whether concentration and barriers to entry are sufficiently high that elimination of a potential competitor substantially reduces competition, and if so, whether one of the firms has an entry advantage into the other's market. For concentration, the merger exceeds the 1800 HHI threshold. The barriers-to-entry analysis is similar to that done above (II.1.c), and yields a mixed result. As for entry advantage – while knowledge on mud production and connections with mud distributors give a low-end mud producer some entry advantage into the high-end market (and vice versa), consumers may associate GE with low-end mud and be suspicious of the quality of high-end mud produced by it, so GE may not have an advantage entering the low-end market. Similarly, entering the low-end segment may not be feasible for PPI, because it would dilute the reputation its high-end brands enjoy.

Conclusion: If high-end mud and low-end mud are not within the same market, I think GE and PPI may not have an entry advantage sufficient to justify a challenge to the merger on the grounds of eliminating potential competition.

3. <u>Vertical Merger</u> [15%]

<u>Why vertical?</u> On its face, mud and MDSs are both components of a mud bath, so they are neither horizontal nor vertical in their relationship. However, because the products have to be used together, a company controlling either mud or MDS production can foreclose competition in the other market (e.g., by tying the sale of PPI mud to the use of MML MDSs, as was done in question III). Thus, competitive concerns are similar to those that occur in vertical mergers.

(a) *Fruehof*: The merger between GE-PPI and MML involves a 43-50% market share in mud production and a 45% share in MDSs. Under the *Fruehof* analysis, there are three potential competitive concerns: (i) Foreclosure of MDS manufacturers (or their customers) from access to mud; (ii) Foreclosure of mud producers (or their customers) from access to MDSs; (iii) Forcing potential competitors in either market to enter the market only on a vertically integrated basis (i.e., produce both mud and MDSs).

Both market shares and concentration are higher in this case than they were in *Fruehof*. However, barriers to entry into the MDS market are very low – the skill and facilities required are common and many firms enter the market occasionally for special orders. Thus, foreclosure of mud producers is unlikely despite MML's 45% market share: if Mud One refuses to sell MDSs for use with rivals' mud, the rivals can simply have MDSs custom built for them by non-specialized firms (as well as by MMC). For the same reason, the merger would not require two-level entry – mud producers can easily get uncommitted MDS manufacturers to produce MDSs for their mud, so there would be viable independent mud producers, who could then purchase MDSs from an new MDS entrant. Also, because of the low barriers to entry into MDS production, and MDS entrant who can't find customers for her MDSs can use the same skills and materials for something else (e.g., mechanical repair), so there are few sunk costs in entering MDS production. For that reason, even foreclosing 50% of the mud market (as may be the result of the merger) should not prevent entry into the MDS market – entry into MDS manufacturing is hard to deter when the investment in entry can be used in other markets (e.g., mechanical repair) which Mud One cannot foreclose.

(b) Section 4.2 of the 1984 Guidelines: The guidelines recognize three situations in which vertical mergers may cause competitive problems: (i) form a barrier to entry by requiring two-level entry – this is not relevant for the reason discussed above (*Fruehof* analysis issue (iii)); (ii) evading rate regulation – not relevant here, since there is not rate regulation on either MDSs or mud; (iii) Facilitating collusion by eliminating a disruptive buyer – since mud producers and MDS manufacturers do not buy from each other, they are do not disrupt cartels, so buying them does not remove an obstacle to a cartel; (iv) Facilitating collusion by acquiring a firm that can monitor up/downstream firms and

punish deviation from a cartel – similarly, since mud producers and MDS manufacturers do not buy from each other, neither has a good ability to monitor or punish firms of the other market.

Conclusion: I think that despite the high market shares and concentration, the vertical aspect of the merger should not be challenged, because the very low barriers to entry into MDS production sooth competitive concerns.

III. **The PPI/MML Joint Venture**

The PPI/MML JV can be challenged in several ways: (i) Tying arrangement between mud and MDSs, in violation of Sherman 1 & Clayton 3; (ii) Exclusive dealing in violation of Sherman 1 & Clayton 3; (iii) Group refusal to deal with other mud/MDS producers in violation of Sherman 1 & Clayton 3; (iv) Monopolization/ attempt to monopolize by individual refusal to deal with other mud/MDS producers, in violation of Sherman 2. Note that the JV Guidelines do not apply, because PPI and MML are not competitors.

1. Tying arrangement [10%]

(a) Clayton 3: Tying arrangements often violate Clayton 3, since the effect of tying two products is effectively precluding the purchaser of one of the products from buying the other product from another source. Clayton 3prohibits selling one good on the condition that the purchaser shall not use the goods of a competitor. Clayton 3 does not apply in this case because PPI conditions selling its mud on not buying MDSs from MML's rivals (rather than its rivals), and MML similarly prohibits buying mud from PPI's rivals.

(b) Per se illegality: Sherman 1 would apply. Under *Jefferson Parish*, a tying arrangement is per se illegal if it involves: (i) two separate products; (ii) a tie – conditioning of the sale of one product on the purchase of another; (iii) sufficient economic power in the tying product market; and (iv) substantial volume of commerce affected in the tied product market.

In this case, promising to sell PPI's mud and MML's MDS in a bundle is a tie. The substantial volume of commerce requirement generally requires a modest dollar value of transactions, and is easily satisfied in this case, where neither PPI nor MML are fringe firms. Mud and MDSs seem to be different products according to the criteria in *Jefferson Parish* and *Jerrold*, which focus on the separate customer demand. Until this JV they were sold separately by all producers, billed for separately, customers may want different types of mud with any given MDS (an MDS can use any mud brand), and consume different amounts of mud per MDS used (since MDSs may be used at varying frequencies). As for sufficient market share in the tying product market – it is not clear which is the tying market. If it is the mud market, PPI has a market share of 14-22%. In *Jefferson Parish*, a 30% market share was seen as insufficient to establish the existence of market power. Thus, PPI's market share is likely not to indicate market power. Even

if high-end mud consists of a separate market, PPI's share would be about 37-38%, which is only slightly in excess of the figure in *Jefferson Parish*. If the tying product market is MDSs, MML has a 45% market share, but barriers to entry are extremely low, so if customers don't want to buy PPI's mud, tying will likely not force them to do so – they'll simply order an MDS from MMC or from one of the many uncommitted MDS manufacturers. Thus, whether mud or MDSs are the tying product, the JV does not have market power in the tying product.

(c) RoR: As demonstrated by the minority opinion in *Jefferson Parish*, RoR analysis of tying focuses on the practice's ability to restrict output, exclude competition or raise prices while increasing profits.

(i)   Competitive harm: As we discussed above (III.1.b), PPI is unlikely to have market power in mud due to its relatively low market share, and MML is unlikely to have market power in MDSs due to the low barriers to entry into the MDS market. Because of the lack of market power, people who do not want to use an MML MDS or PPI mud can find alternative MDS or mud producers. Thus, MML and PPI cannot exclude competition, and if they raise prices or restrict output, they will merely divert customers to rivals, losing sales and market share. Regarding aftermarkets (such as in *Kodak* or *Eliott*): preexisting owners of MML MDSs are not trapped into using PPI mud because switching costs to other mud brands are low (any MDS can use any mud brand). Only future buyers of MDSs are affected, and they know about the tie, so there is no change of policy that traps them. According to *Uniq* (7th Circuit), this should remove antitrust concerns; according to *Red Lion* (E.D. Cal.), switching costs rather than a policy change are at the heart of assessing competitive harm. In this case, switching costs are low for buyers who purchased the machine before the JV, but are very high for new buyers (the tied mud supply contract lasts for the MDSs entire expected lifetime). Thus, the DoJ may want to bring evidence on buyers' lack of awareness to (or ability to estimate the cost of) buying the MDS bundled with the long-term mud supply agreement.

(ii)   Efficiencies: The fact pattern does not suggest whether there are any efficiencies resulting from the JV. It is possible that most customers stick to the same mud brand even though the cost of switching to another brand is merely 6 hours of cleaning the MDS. If so, there is an advantage to ensuring a supply of mud over the lifetime of the MDS, and locking its price. However, this can be done via long term supply agreements without tying (i.e., PPI can offer long term contracts without obligating MML to only sell its machines to customers who opted for the long-term supply contract). This is analyzed in III.2.b.

A more plausible efficiency argument is that tying mud & MDSs is a way to price discriminate according to the amount of mud used by the

MDS. Presumably, people using the MDS more frequently (and thus consuming more mud) derive more utility from the MDS (and would be willing to pay more for the MDS). By tying MDS and mud and selling the MDS at cost and the mud at a premium, low-use customers would pay less than high-use consumers. The result would be an increase in output (some marginal low-use customers will buy an MDS and use very little mud), but a lower consumer surplus (high-use customers will pay more for the combination of MDS and mud than they would have everyone paid the same price for MDS and mud).

Conclusion: Whether the price discrimination efficiency is plausible or not, competitive harm seems unlikely so the tying arrangement would seem not to violate Section 1 under RoR analysis.

2. Exclusive dealing [10%]

There are two potential exclusive dealing agreements: (i) PPI-MML agreement: MML promises to only bundle with PPI mud, and PPI promises only to bundle with MML MDSs; (ii) PPI-customer agreement: Since PPI sells mud only in long-term contracts that supply customers with all of their mud requirements, it is effectively conditioning the sale of mud on not buying mud from rivals.

(a) Clayton 3 does not apply to the PPI-MML agreement (see III.1.a). However, it does apply to the PPI-customer requirements agreement (PPI is supplying all of the customer's mud needs, which may be equivalent to a condition that customers abstain from buying mud from PPI's rivals (*Tampa Electric*).

Though Clayton 3 has a different standard of legality that Sherman 1 ("where the effect may be to substantially lessen competition", as opposed to "[unreasonable] restraint of trade"), the substantive analysis of legality under Clayton 3 is similar to the analysis under Sherman 1. For this analysis see III.2.b.

(b) Sherman 1: Exclusive dealing is per se illegal only if is a group refusal to deal (*U.S. Healthcare*). For an analysis of the JV as a group refusal to deal see III.3. Alternatively, DoJ can argue that the exclusive dealing is illegal under a RoR analysis. RoR analysis of exclusive dealing between PPI & MML is identical to the tying arrangement analysis (III.1.c). RoR analysis of exclusive dealing in the agreement between PPI and the customers is similar to the analysis in *Tampa Electric*. Competitive harm is assessed by defining the relevant market and assessing foreclosure and its effects. The relevant market is either therapeutic mud or high-end therapeutic mud. PPI's market share is 14-22% or 37-38%, respectively. This is much higher than the 1% foreclosure in Tampa Electric, and, depending on whether a high-end market exists, may or may not be higher than the 25% foreclosure in *U.S. Healthcare*. The minority opinion in Jefferson Parish assessed that case as exclusive dealing and found a 30% foreclosure insufficient to indicate competitive harm. On the efficiency side, long-term requirements agreements have efficiencies, as described in III.1.c(ii).

Conclusion: Exclusive dealing in both the PPI-MML and PPI-mud customer agreements is not per se illegal, and is likely to be legal under RoR analysis.

3. Group refusal to deal [5%]

Is the JV a per se group refusal to deal? The parties to the merger, PPI and MML, are not rivals (they produce complementary, not substitute, products). Under *NYNEX v. Discon* their agreement to refuse to deal is not a per se illegal group refusal to deal. Thus, the JV should be analyzed as two individual refusals to deal (PPI refuses to deal with MML's rivals, MML refuses to deal with PPI's rivals). Clayton 3 does not apply because it only involves a condition not to deal with goods of rivals. The agreement may be analyzed as a violation of Sherman 1 under the RoR. On competitive harm see III.1.c(i) & III.2.b. Efficiencies from the JV were discussed above (III.1.c(ii)). Conclusion: While the efficiencies are uncertain, competitive harm seems unlikely because low barriers to entry in the MDS market and PPI's moderate market share in the mud market preclude an RtD from harming competition in either market.

4. Monopolization/attempt to monopolize [10%]

(a) Duty to deal: *Colgate* doctrine: Firm may decide who it deals with. *Lorain Journal*: Despite *Colgate*, firm may not refuse to deal for the purpose to harming competition and acquiring or maintaining a monopoly. *Spectrum Sports*: Individual refusal to deal is prohibited only if intended to and having a dangerous probability of achieving monopoly (see analysis below at III.3.c). *Aspen* and *Trinko* do not apply, since they relate to a duty to deal with rivals, and under the individual refusal to deal argument, both PPI and MML refuse to deal with the other's rivals. Similarly, the essential facility doctrine is inapplicable because neither mud nor MDSs are 'essential facilities' and denial of 'access' is not done to a competitor, so at least the first and third elements of the four-part *MCI Communications* test are not satisfied.

(b) Monopolization: Under *Grinnell*, monopolization has two elements: (i) the possession of monopoly power in the relevant market; (ii) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historical accident.

Do PPI and MML have monopoly power? PPI has a 14-22% market share, and MML has a 45% share. ALCOA suggests the rule of thumb that 30% is not indicative of a monopoly, 60% may be indicative of a monopoly, and 90% is certainly indicative of a monopoly. *Domed Stadium Hotel* stated that absent special circumstances a defendant must have a market share of at least 50% to be found guilty of monopolization. But in *Broadway Delivery Corp*, the court found that a District Court has erred in instructing that a market share under 50% precluded a finding of monopoly power. *U.S. Football League* concluded that when market shares are relatively low, showing market power would require unambiguous evidence of the ability to control prices or exclude competition. In our case, PPI's 14-22% share of the mud market indicates that PPI lacks

monopoly power (unless there is a separate high-end mud market). MML's 45% share may have been a borderline case if barriers to entry were high, but given the low barriers to entry into the MDS market, MML is unlikely to be able to control prices or exclude competition. Thus, the monopolization claim fails.

(c) Attempt to monopolize: Under *Spectrum Sports*, attempt to monopolize has three elements: (i) Defendant engaged in predatory or anti-competitive conduct; (ii) A specific intent to monopolize; (iii) A dangerous probability of achieving monopoly power.

> (i)　　Anti-competitive conduct: Individual refusal to deal could in some circumstances be considered wrongful conduct (*Spectrum Sports*). So could tying (*Kodak*) and exclusive dealing (*U.S. Healthcare*).
>
> (ii)　　Specific intent: The fact pattern does not provide unambiguous evidence of specific intent to monopolize through the JV. PPI's participation in the 'RPM understanding' in question 1 actually indicates collegiality (and perhaps collusion) rather than predation. If efficiencies can be substantiated for the tying and the requirements contracts (III.1.c(ii)), it would be hard to infer an anti-competitive motive for them.
>
> (iii)　　Dangerous probability of success: Theoretically, PPI's RtD with customers who do not buy MML's MDS could allow MML market power in MDSs (though, as we analyzed above, market shares and conditions make this result unlikely in our fact pattern). Even if this were the result, PPI's RtD would not result in PPI's acquiring market power in its market (therapeutic mud). Similarly, MML's RtD with customers who do not buy PPI's mud is not predatory against other MDS producers, and cannot enable MML to monopolize MDS production. In fact, the RtD assists each firm's rivals by diverting to them business that the firm refused. The possibility that RtD, tying or exclusive dealing by one firm will harm competition in the other's market is not a Sherman 2 violation. We analyzed above this concern under Sherman 1 & Clayton 3.

Conclusion: The long-term mud requirements contract and the tying of mud and MDSs seem not to violate antitrust laws.